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UNIVERSITY OF LÜNEBURG

DEVELOPING AFFECTIVE-MOTIVATIONAL COMPETENCE WITHIN EDUCATION FOR SUSTAINABLE CONSUMPTION THROUGH SELF-REFLEXIVE LEARNING ACTIVITIES

Academic dissertation

Submitted by

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7. Frank, P., Sundermann, A., & Fischer, D. (2019). How mindfulness training cultivates introspection and competence development for sustainable consumption. *International Journal of Sustainability in Higher Education*, 20(6), 1002-1021
8. Frank, P., Stanszus, L., Fischer, D., Kehnel, K., & Grossman, P. (2019). Cross-Fertilizing Qualitative Perspectives on Effects of a Mindfulness-Based Intervention: An Empirical Comparison of Four Methodical Approaches. *Mindfulness*, 21(4), 1-16
9. Frank, P., Fischer, D., & Wamsler, C. (2019). Mindfulness, Education, and the Sustainable Development Goals. In W. Leal Filho, A. M. Azul, L. Brandli, P.G. Özuyar, & T. Wall (Eds.), *Encyclopedia of the UN Sustainable Development Goals. Quality Education*. Cham, Springer, 1-11
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Abstract

It is understood among research and policy makers that addressing unsustainable individual consumption patterns is key for the vision of sustainable development. Education for Sustainable Consumption (ESC) is attributed a pivotal role for this purpose, aiming to improve the capacity of individuals to connect to and act upon knowledge, values and skills in order to respond successfully and purposefully to the demands of sustainable consumption. Yet despite growing political, scientific, and educational efforts to foster more sustainable consumption practices through ESC, and increasing awareness about the negative ecological and socio-economic impacts of individual consumer behavior in the general population, little has been achieved to substantially change behavioral patterns so far. As part of the explanation for this shortcoming, it has been argued that current ESC practices have neglected the personal dimension of sustainable consumption, especially the affective-motivational processes underlying unsustainable consumption patterns.

Against this background, this cumulative thesis is guided by the question how personal competencies for sustainable consumption can be defined, observed, and developed within educational settings. Special attention is given to mindfulness practices, describing the practice of cultivating a deliberate, unbiased and openhearted awareness of perceptible experience in the present moment. These practices have received growing attention within ESC as a means to stimulate competencies for sustainable consumption. Drawing upon an explorative, qualitative research methodology, the thesis looks at three different mindfulness-based interventions aiming to stimulate competencies for sustainable consumption, reaching out to a total number of 321 participants (employees and university students).

In this thesis, I suggests to define personal competencies for sustainable consumption as abilities, proficiencies, or skills related to inner states and processes that can be considered necessary or sufficient to engage with sustainable consumption (SC). These include ethics, self-awareness, emotional resilience, self-care, access to and cultivation of personal resources, access to and cultivation of ethical qualities, and mindsets for sustainability. It is argued that these competencies directly relate to those challenges individuals face when attempting to consume in a way that corresponds to their sustainability-related intentions or engage in SC-related learning activities. It provides evidence that the cultivation of (some of) these competencies allows individuals to overcome (some of) these challenges.

The thesis holds that the observation of personal competencies benefits from a combination of different methodological and methodical angles. When working with self-reports as empirical data, a pluralistic qualitative methods approach can help overcoming shortcomings that are specifically related to individual methods while increasing the self-reflexivity of the research. This is especially important in order to reduce the risk of looking for desired outcomes and misinterpreting statements of the inquired population. This risk can also be diminished by discussing and adjusting interim findings with this population. Moreover, it is suggested to let learners analyze their own personal statements in groups, applying scientific methods. The products of the group analyses represent data based on an inter-subjectively shared perspective of learners that goes beyond self-estimation of personal competencies.

In terms of developing personal competencies for SC, it can be concluded that mindfulness practice alone is not sufficient to build personal competencies for SC. While it can stimulate generic personal competencies, individuals do not necessarily apply these competencies within the domain of their consumption. Furthermore, even though the practice increases individuals’ self-awareness for current inner states and

processes, practitioners do not seem to become aware of and reflect upon the more latent, personal predispositions out of which the current sensations occur.

Nevertheless, mindfulness practice can play an important role in ESC, insofar as it lays the inner foundation to engage with sustainability-related issues. More precisely, it allows learners to experience the relevance of their inner states and processes and the influence they have on actual behaviors, leading to a level of self-awareness that would not be accessible solely through discursive-intellectual means. Furthermore, participants experience mindfulness practice as a way to develop ethical qualities and access psychological resources, entailing stronger emotional resilience and improved well-being. In order to unleash its full potential for stimulating personal competencies for SC, however, the findings of the thesis suggest that mindfulness practice should be (a) complemented with methodically controlled self-inquiry and (b) related to a specific behavioral change. In this vein, self-inquiry-based and self-experience-based learning – two pedagogical approaches developed during the period of research for this thesis – turned out to be promising pedagogies for educational settings striving to stimulate the development of personal competencies for SC.

Overall, the thesis makes a novel contribution to the field of competency-based ESC by suggesting personal competencies for sustainable consumption as important and desirable learning outcomes of ESC practices. Furthermore, it provides specific pedagogies and learning activities in order to achieve these learning outcomes. As such, the thesis answers to general calls from education for sustainable development scholars to take the inner, affective-motivational dimension of individuals into consideration and makes a first suggestion as to how this can be systematically achieved.

Zusammenfassung

In Wissenschaft und Politik gilt die Förderung nachhaltigen Konsumverhaltens mittlerweile als Schlüssel für die Erreichung des Ziels nachhaltiger Entwicklung. Bildung für nachhaltigen Konsum (BNK) nimmt hierbei eine besonders wichtige Rolle ein, indem sie die Individuen bei der Aneignung und Umsetzung des hierfür notwendigen Wissens, sowie der notwendigen Werte und Fähigkeiten unterstützt. Doch trotz der zunehmenden Anstrengungen von Seiten der Politik, Wissenschaft und Bildung, nachhaltiges Konsumverhalten zu fördern, sowie einem nachweislich wachsendem Bewusstsein in der Bevölkerung für die negativen ökologischen und sozio-ökonomischen Folgen individuellen Konsumverhaltens, hat sich das tatsächliche Konsumverhalten der Menschen bis dato kaum verändert. Dies wird zum Teil damit erklärt, dass aktuelle Umsetzungen von BNK zu wenig auf die persönlichen Dimensionen nachhaltigen Konsums eingehen und sich vor allem zu wenig mit den affektiv-motivationalen Prozessen hinter nicht-nachhaltigen Konsummustern beschäftigen.

Vor diesem Hintergrund setzt sich diese kumulative Arbeit damit auseinander, wie persönliche Kompetenzen für nachhaltigen Konsum im Rahmen von Bildungsarbeit definiert, beobachtet und entwickelt werden können. Besondere Aufmerksamkeit wird dabei Achtsamkeitspraktiken gewidmet, also Praktiken zur Einübung bewusster, unbeeinflusster und offener Aufmerksamkeit für die Wahrnehmung der Erfahrungen im gegenwärtigen Moment. Diese Praktiken haben innerhalb der BNK als Mittel zur Förderung von Kompetenzen für nachhaltigen Konsum in den letzten Jahren wachsendes Interesse erfahren. Mithilfe eines qualitativ-explorativen Forschungsansatzes werden im Rahmen dieser Arbeit drei verschiedene achtsamkeitsbasierte Interventionen untersucht, welche zum Ziel hatten, Kompetenzen für nachhaltigen Konsum zu fördern. Insgesamt wurden mit diesen Interventionen 321 Teilnehmende (Studierende und Angestellte) erreicht.

Als Ergebnis dieser Arbeit wird vorgeschlagen, personale Kompetenzen für nachhaltigen Konsum als diejenigen Vermögen, Fähigkeiten und Fertigkeiten zu verstehen, die sich auf die inneren Zustände und Prozesse einer Person beziehen, welche für die Beschäftigung mit nachhaltigem Konsum notwendig oder ausreichend sind. Darunter fallen Ethik, Eigenwahrnehmung/Selbstwahrnehmung, emotionale Resilienz, Selbstfürsorge, Zugang und Pflege persönlicher Ressourcen, Zugang zu und Pflege ethischer Qualitäten sowie grundlegende nachhaltigkeitsförderliche Denkweisen. Im Rahmen dieser Arbeit wird argumentiert, dass diese Kompetenzen in direkter Verbindung zu den individuellen Herausforderungen stehen, entsprechend den eigenen nachhaltigkeitsbezogenen Vorhaben zu handeln oder sich mit Themen nachhaltigen Konsums zu beschäftigen. Außerdem werden Hinweise dafür vorgestellt, dass die Aneignung (mancher) dieser Kompetenzen es Individuen ermöglicht, (manche) dieser Herausforderungen zu bewältigen.

In Bezug auf die Beobachtung personaler Kompetenzen schlägt die Arbeit eine Kombination verschiedener methodologischer und methodischer Perspektiven vor. Insbesondere bei der Beforschung von selbstauskunftbasierten Daten kann ein pluralistischer qualitativer Methodenansatz helfen, Schwächen einzelner Methoden auszugleichen und gleichzeitig die Selbstreflexion der Forschung zu erhöhen. Das ist besonders wichtig, um das Risiko zu verringern, gewünschte Ergebnisse zu produzieren und die Aussagen einer untersuchten Gruppe demgemäß zu interpretieren. Dieses Risiko kann auch dadurch gesenkt werden, zwischenzeitlich gefundene Ergebnisse mit der untersuchten Population zu diskutieren und anzugleichen. Außerdem wird vorgeschlagen, die Lernenden selbst mit der Analyse ihrer persönlichen Aussagen in Gruppen und unter Verwendung wissenschaftlicher Methoden zu betrauen. Die Produkte dieser

Gruppenanalysen ergeben Daten, die eine intersubjektiv geteilte Perspektive der Lernenden reflektieren und über die Selbsteinschätzung personaler Kompetenzen hinausgehen.

In Bezug auf die Entwicklung personaler Kompetenzen für nachhaltigen Konsum wird zusammenfassend festgestellt, dass Achtsamkeitspraktiken allein nicht ausreichen. Zwar können sie allgemein personale Kompetenzen fördern, diese werden aber von den Individuen nicht zwangsläufig im Rahmen ihres Konsumverhaltens angewandt. Während sie außerdem die Selbstwahrnehmung der Teilnehmenden für ihre inneren Zustände und Prozesse fördern, scheinen diese dadurch nicht automatisch bewusster gegenüber ihren eher latenten, persönlichen Dispositionen zu werden, die zu den jeweiligen Empfindungen führen.

Nichtsdestotrotz können Achtsamkeitspraktiken eine wichtige Rolle innerhalb der BNK spielen, da sie dazu beitragen können, die inneren Grundlagen für eine Auseinandersetzung mit nachhaltigkeitsbezogenen Themen zu schaffen. Indem sie Lernenden erlauben, die Relevanz innerer Zustände und Prozesse sowie deren Einfluss auf tatsächliches Verhalten zu erfahren, ermöglichen sie eine Stufe der Selbstwahrnehmung, die nicht durch diskursiv-intellektuelle Lernaktivitäten allein zugänglich ist. Außerdem erleben Teilnehmende die Achtsamkeitspraktiken als Möglichkeiten, ethische Qualitäten auszubilden sowie Zugang zu psychologischen Ressourcen zu finden und somit mehr emotionale Resilienz und Zufriedenheit zu erlangen. Um ihr volles Potenzial für die Förderung personaler Kompetenzen für nachhaltigen Konsum auszubilden, legt diese Arbeit jedoch nahe, Achtsamkeitspraktiken (a) mit methodisch kontrollierter Selbstbeforschung und (b) an spezifische Verhaltensänderungen anzubinden. Selbstbeforschendes und selbsterfahrungsbasiertes Lernen – zwei pädagogische Ansätze, die im Rahmen dieser Arbeit entwickelt wurden – haben sich hierfür als vielversprechende Bildungsansätze herausgestellt, die die Förderung personaler Kompetenzen für nachhaltigen Konsum ermöglichen.

Zusammenfassend bietet diese Arbeit einen neuartigen Beitrag zum Forschungsfeld der kompetenzbasierten BNK, indem sie personale Kompetenzen für nachhaltigen Konsum als wichtige und wünschenswerte Lernziele für BNE hervorhebt. Außerdem liefert sie spezifische pädagogische Ansätze und Lernaktivitäten für die Erreichung dieser Lernziele. Somit antwortet diese Arbeit auf den allgemeinen Appell einiger ForscherInnen zu Bildung für nachhaltige Entwicklung, innere affektiv-motivationale Dimensionen stärker zu berücksichtigen, und macht einen ersten Vorschlag dazu, wie dies systematisch umgesetzt werden kann.

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ACMHE	Association for Contemplative Mind in Higher Education
AMRA	American Mindfulness Research Association
BiNKA	German acronym for Education for Sustainable Consumption through Mindfulness Training
BMU	Bundesministerium für Umwelt, Naturschutz, Bau und nukleare Sicherheit - German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
EBL	Experience-Based Learning
EEA	European Environmental Agency
ESC	Education for Sustainable Consumption
ESD	Education for Sustainable Development
GAP	Global Action Program
GCED	Global Citizenship Education
HESD	Higher Education for Sustainable Development
ICT	Information and Communication Technology
ILO	International Labor Organization
IMELS	Italian Ministry for the Environment, Land and Sea
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
KCSC	Key Competency for Sustainable Consumption
MBCT	Mindfulness-Based Cognitive Therapy
MBI	Mindfulness-Based Intervention
MBSR	Mindfulness-Based Stress Reduction
MLERN	Mind and Life Education Research Network
MM	Mindfulness Meditation
OECD	Organization for Economic Co-Operation and Development
SC	Sustainable Consumption
SD	Sustainable Development
SDG	Sustainable Development Goals
SEL	Social and Emotional Learning
UBA	Umweltbundesamt – German Federal Environment Agency
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNDSD	United Nations Division for Sustainable Development
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees

WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen - German Advisory Council on Global Change
WCED	World Commission on Environment and Development

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1. On this thesis

The here-presented thesis is the final product of a cumulative dissertation project I officially began in October 2015 (initially writing under the supervision of Prof. Dr. Jürgen Straub, Ruhr-University Bochum, before moving to Leuphana University Lüneburg). It consists of ten peer-reviewed articles published (or in one case submitted) in scientific journals and encyclopedias over the course of the last three years (see table 1, in chronological order) and the framework paper. As foreseen in §15 of the guidelines for cumulative dissertations of the Faculty of Sustainability of Leuphana University Lüneburg, the aim of this framework paper is to elucidate “the internal coherence of the articles, the aspects studied in the articles, the methods employed and the results”. Furthermore, it should inform the supervisors about the authorship and status of each publication (§16).

Table 1: List of articles composing the cumulative thesis.

Number	Title	Contribution to thesis and corresponding sub-section	Weighting factor
1	Frank, P. (2017). Warum wir Tiere essen (obwohl wir sie mögen). Sozialpsychologische Erklärungsansätze für das Fleischparadox. *Psychosozial*, 40(148), 49–69	Theoretical, 3.2.2.	1
2	Stanszus, L., Fischer, D., Böhme, T., Frank, P., Fritzsche, J., Geiger, S.M., Harfensteller, J., Grossmann, P., Schrader, U. (2017). Education for Sustainable Consumption through Mindfulness Training: Development of a Consumption-Specific Intervention. *Journal of teacher education for sustainability*, 19(1), 5-21	Conceptual, 4.1.1.	0,5
3	Frank, P. & Fischer, D. (2018). Introspektion und Bildung für nachhaltigen Konsum: Ein Lehr-Lern-Format zur systematischen Selbsterforschung in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte – Leuphana Universität Lüneburg. In W. Leal (Ed). *Nachhaltigkeit in der Lehre: eine Herausforderung für Hochschulen*. Springer, Wiesbaden, 469-485	Conceptual / Empirical, 4.2.2.	1
4	Frank, P. (2018). Knowledge Generation and Sustainable Development. In W. Leal Filho (ed.), *Encyclopedia of Sustainability in Higher Education*. Springer, Cham	Theoretical / conceptual, 3.2.3.	1
5	Stanszus, L., Frank, P., & Geiger, S. (2019). Healthy eating and sustainable nutrition through mindfulness? Mixed method results of a controlled intervention study. Appetite, 141	Empirical, 4.1.3.	0,5
6	Frank, P. & Stanszus, L. (2019). Transforming consumer behavior: Introducing self-inquiry-based and	Conceptual / Empirical, 4.3.1.	1

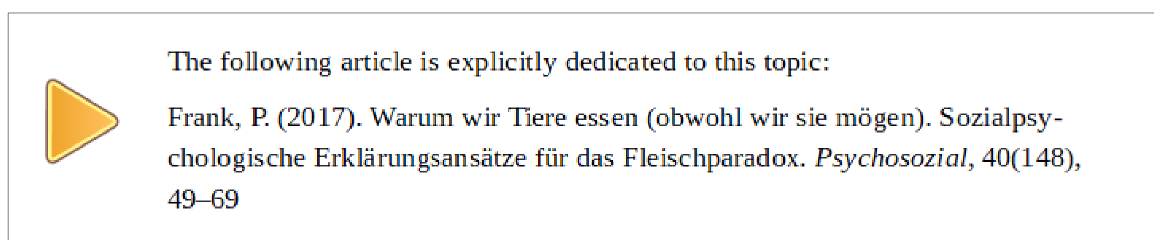
	self-experience-based learning for building personal competencies for sustainable consumption. *Sustainability*, 11(9), 2550		
7	Frank, P., Sundermann, A. & Fischer, D. (2019). How mindfulness training cultivates introspection and competence development for sustainable consumption. *International Journal of Sustainability in Higher Education*, 20(6), 1002-1021	Empirical, 4.2.1.	1
8	Frank, P., Stanszus, L., Fischer, D., Kehnel, K. & Grossman, P. (2019). Cross-Fertilizing Qualitative Perspectives on Effects of a Mindfulness-Based Intervention: An Empirical Comparison of Four Methodical Approaches. *Mindfulness*, 21(4), 1-16	Empirical / Methodological, 4.1.2.	1
9	Frank, P., Fischer, D., & Wamsler, C. (2019). Mindfulness, Education, and the Sustainable Development Goals. In W. Leal Filho, A. M. Azul, L. Brandli, P.G. Özuyar, & T. Wall (Eds.), *Encyclopedia of the UN Sustainable Development Goals. Quality Education*. Cham, Springer, 1-11	Theoretical, 3.3.2.	1
10	Frank, P., Stanszus, L., Fischer, D., Grossman, P. & Schrader, U. (submitted). What happens when people start to meditate on consumption? Insights from a qualitative intervention study. *Journal of Consumer Research*	Empirical, 4.1.4.	1

A particular challenge of writing a cumulative dissertation based on a qualitative, exploratory methodology is the evolutionary character of this kind of research. Over the course of a qualitative inquiry, the researcher must expect different ideas to emerge, operational directions to change, and methodical adaptations to become necessary in response to what is found in the data at a specific point in time (Strauss & Corbin, 1998). The research question´which the final product aims to answer might hence differ from what had initially guided the inquiry process or constituted the basis of singular articles. Addressing this challenge, I perceive of the framework paper as an opportunity to construct a coherent narrative that relates the individual articles one to another in a meaningful way and to provide explanations as to why the research process evolved in the way it actually did. As such, the framework paper turns into a compass guiding the reader through the research journey I have undertaken, intending to make sure that they can follow the beaten path of inquiry without stepping into the same dead ends, circuits, and detours I went through in order to identify this path. In other words, it should serve as a guide that allows the readers to apprehend the common theme and internal coherence of the singular contributions, taking into account that the latter have not always been planned and written as coherently and consecutively as the framework paper suggests.

This framework paper is structured as follows: after introducing the main concepts of my thesis in section 2, section 3 provides the broader theoretical background underlying the empirical work conducted during the dissertation process. In section 4, I elaborate on the general methodological considerations behind the empirical work, summarize the research methods and findings of each empirical article and explain how they relate to each other. An overall summary of the thesis' results is

also provided (sub-section 4.4). A discussion of the overarching research limitations follows in section 5, completed by some deliberations on the practical implications and future research. Since my dissertation is dedicated to self-reflexive learning processes, it seems appropriate to me to conclude the framework paper with some personal reflections concerning my journey of writing this thesis and what I have learned over the course of this journey.

The overall research question of this thesis is guided by the question as to how personal competencies for sustainable consumption can be defined, observed, and developed within educational settings. As mentioned, each article makes a specific contribution to answering this question. Paper 1, 4, and 9 have primarily contributed to developing the theoretical background of this thesis. I recommend reading these articles alongside the corresponding sub-sections indicated in table 1, to which the related article has significantly contributed. In order to facilitate the orientation when reading this document, I will also directly indicate related theoretical articles in the corresponding sub-section as illustrated in figure 1. Paper 2, 3, 4, and 6 make important conceptual contributions to my thesis. With the exception of paper 4, these articles will be discussed in further detail in section 4, as they are directly related to the empirical results. As is the case for the empirical articles (3, 5, 6, 7, 8, 10). A whole sub-section will be dedicated to these pieces. While paper 8 is also based on empirical results, its main contribution to the thesis is primarily methodological. These distinctions refer to the main contribution of the article to the thesis. Because each article represents an independent piece of research published in a journal article, all include sections on theoretical backgrounds and, in the case of empirical work, on methods and results. As a consequence, the reader will find some redundancy in between the framework paper and the (especially empirical) articles of the dissertation. Nevertheless, I hope that the sub-sections in section 4 will help identifying the unique contribution of each empirical work.


The following article is explicitly dedicated to this topic:

Frank, P. (2017). Warum wir Tiere essen (obwohl wir sie mögen). Sozialpsychologische Erklärungsansätze für das Fleischparadox. *Psychosozial*, 40(148), 49–69

Figure 1: Example of how corresponding theoretical articles are indicated throughout section 3.

An important issue related to the redundancy is self-plagiarism. While each article provides a unique contribution to this thesis and while the framework paper also constitutes an independent piece of work solely written by myself (as foreseen in the guideline, §15), a few passages of section 3 (especially section 3.3.2.) and 4 rely on the formulations used within the published articles. This is because the content of the framework paper is not meant to be completely novel, having the goal of constructing a narrative in which the coherence of the different articles is developed, so that the reader is able to apprehend the 'whole picture' of the thesis. For this reason, it is written in a way that it can be read independently of the articles. Obviously, parts of this picture have been elaborated in the singular papers, yet for the purpose of readability and comprehensibility, they are synthesized and brought into a meaningful order. The reader can easily identify the relevant passages, as I will always

refer to the corresponding article either as described above (for section 3) or directly in the title (section 4).

For reasons of evaluation, I have indicated the ‘weighting factor’ for each article in table 1. Apart from article 2 and 5 to which I have made important contributions (0,5), I have always been single or first author, having predominantly (and in case of paper 9, equally) contributed to the realization of each work.

2. Introduction

In 1994, environmental scientist David Orr described in his book *Earth in Mind* a paradoxical trend that characterized the development of human society: On the one hand, society witnessed continuous economic growth, increasing per capita wealth and fast progress in technological innovation, leading to enormous improvements in energy and resource efficiency. On the other hand, he stated that “many things on which our future health and prosperity depend are in dire jeopardy” (p. 7). As indicators for this jeopardy, Orr listed unprecedented rates of rain forest loss (116 square miles per day), desertification (72 square miles per day), species extinction (40 to 250 species per day), population growth (250.000 per day), water pollution, greenhouse gas emissions (e.g. 15 million tons of CO^2 per day), and, as a result, global warming. While Orr attributed a pivotal role in developing solutions for these threats to schools and universities, at the same time, he considered the formal education as the key cause for these threats: “It is worth noting that this is not the work of ignorant people. Rather, it is largely the results of people with BAs, BSs, LLBs, MBAs and PhDs” (ibid.). In his point of view, “education is no guarantee for decency, prudence, or wisdom. More of the same kind of education will only compound our problems. […] It is not education, but education of a certain kind, that will save us” (p. 8). Among other characteristics, Orr defined this “certain kind of education” as environmental education.

Now, 25 years later, the vision of a sustainable development (SD) has turned into a topical issue within international politics and education. On a political level, at the latest since 2015, it has turned into a global project: The United Nations’ (UN) *Sustainable Development Goals* (SDGs) have been ratified by all 193 member states of the UN. These goals represent blueprints to achieve a better and more sustainable future by addressing “the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice” (UN, 2019, pg. 1). Their implementation is further defined by each member state in forms of National Actions Plans, turning SD to a global political agenda.

Education for Sustainable Development (ESD), understood as learning activities in which “learners acquire knowledge and skills needed to promote sustainable development” (UN, 2015), plays a pivotal role for the implementation of this agenda. Having its roots in environmental education (e.g. Michelsen & Fischer, 2015), ESD has been described as a “key enabler” (UN, 2017) for achieving the SDGs and a “changed educational paradigm” (Barth et al., 2015, p. 1), as it allows to intervene in young people’s lives “productively in shaping them in a sustainable manner” (ibid.). For this reason, both politicians and academics have highlighted ESD’s potential to contribute to the larger societal transformation toward a sustainable future (German Advisory Council for Global Change [German: Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU], 2011; Singer-Brodowski, 2016a).

ESD has been globally promoted under the United Nations’ *Decade of Education for Sustainable Development* (UNESCO, 2005) between 2005 until 2014. Its overall aim was to integrate the principles, values and practices of SD into every domain of education and learning within the national

educational systems. As a continuation of the UN decade, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) launched the *Global Action Program (GAP) on ESD* in 2015. GAP is a key pillar of the UN's *2030 Agenda for Sustainable Development* (UN, 2015), reinforcing the goal "to generate and scale up action in all levels and areas of education and learning to accelerate progress towards sustainable development" (UNESCO, 2014). The program foresees the development of specific national action plans that specify the implementation of ESD in all forms of educational institutions.

To date, there is evidence that ESD, understood for now as "the totality of all actions by which people seek to promote learners' sustainability competencies" (Waltner et al., 2019), has spread across all levels and areas of education. While it would be misleading to presume a direct causality, it can be observed that young children, school students, university students, and educators alike have been familiarized with key concepts of SD since the launch of the UN decade (UNESCO, 2014; Jucker & Mathar, 2015). The most recent issue of *ESD and GCED (Global Citizenship Education) Upclose* (UNESCO, 2019) confirms that ESD has nowadays penetrated curricula from preschool, to primary school, up to upper secondary education on a global scale and across disciplinary borders. UNESCOs' 1.261 success stories and empirical inquiries from ESD worldwide provide further evidence for this claim (see official web page), as does the appearance of numerous guides, handbooks, school textbooks and curricula from and for all kinds of formal educational institutions. This is well documented in the continuously rising amount of scholarly literature on the topic. According to the SCOPUS database, scientific publications on ESD have increased twenty-fold over the last 15 years, reaching its current peak in 2018 with 194 articles (see figure 2)[1]. In comparison: The overall scientific publication output has not even doubled during the same period (Bornmann & Mutz, 2015), illustrating the substantially stronger rise in popularity of ESD. Related articles cover a broad range of inquiries, including students' and educators' perception and awareness of SD challenges, the relevance of SD topics in text books and curricula, regional variances regarding the implementation of ESD, etc. A series of international conferences, networks, and journals, as well as a growing number of university faculties and academic programs (e.g. Michelsen, 2015) related to SD further prove the mounting importance of ESD. In this sense, the "changed education paradigm" of ESD has found its way into mainstream education.

1 Search string: TITLE-ABS-KEY ("education for sustainable development" OR (esd AND sustainable AND education) OR "sustainability education"). The latter was included because the term sustainability education is a somewhat more prominent term in the US.

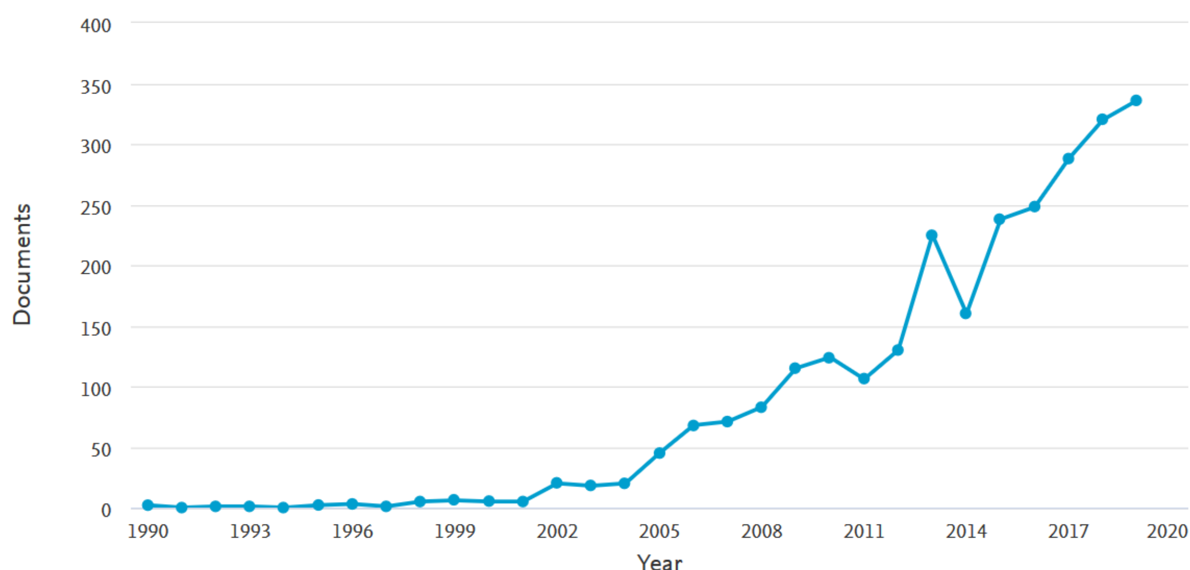


Figure 2: Development of ESD literature according to SCOPUS from 1990 until 2019.

There is, however, evidence pointing at the fact that ESD has so far not unleashed its transformative potential that has been attributed to it. Exemplarily looking at the environmental threats mentioned before, each of them is continuously aggravating: According to Global Forest Watch, "deforestation is still on an upward trend" (Carrington, 2019), having caused a total loss of more than 3.6 million hectares of pristine rain forest. The current *World Atlas of Desertification* reports that "over the past twenty years, pressures on land and soil have increased dramatically" (Joint Research Center of the European Commission, 2018). According to the World Atlas, over 75% of the Earth's land area is already degraded, and over 90% could become degraded by 2050. Globally, a total area half of the size of the European Union (4.18 million km²) is degraded annually, with Africa and Asia being most highly affected. In terms of species extinction, the most recent *Global Assessment Report on Biodiversity and Ecosystem Services* (Intergovernmental Platform on Biodiversity and Ecosystem Services [IPBES], 2019) argues that human activities are threatening more species than ever before. The report states an unprecedented rate of species extinction and hold that around 25% of species in plant and animal groups are vulnerable. Global endeavors to reduce carbon emissions have also failed so far: The latest UN' *Emissions Gap Report* (United Nations Environment Program [UNEP], 2018) confirms that "global greenhouse gas emissions show no signs of peaking" (p. 6) and warn that unless "ambitions are not increased before 2030, exceeding the 1.5 °C goal can no longer be avoided. Now more than ever, unprecedented and urgent action is required by all nations" (p. 4). In line with these findings are the *Global Footprint Network*'s forecasts for the *Earth overshoot day* in 2019, being the earliest date measured in which humanity's resource consumption for the year exceeds the earth's capacity. Meanwhile, global population is continuously augmenting: According to the UN' *World Population Prospects 2019*, 7.7 billion people inhabit the planet to date, with an estimated rise to 9.7 billion until 2050. As the report concludes, "such changes in the size and distribution of the world's population have important consequences for achieving the […] SDGs" (United Nations Department of

Economic and Social Affairs [UNDESA], 2019, p. 1). There is also reason to question improvements related to peace and justice: For example, the *World Inequality Report 2018* documents increased income and wealth inequalities both on a global and national level, arguing that "the global top 1% earners has captured twice as much of that growth as the 50% poorest individuals" (World Inequality Lab, 2018, p. 11). Finally, the UN' High Commissioner for Refugees (UNHCR) states that "an unprecedented 70.8 million people around the world have been forced from home. Among them are nearly 25.9 million refugees, over half of whom are under the age of 18." (UNHCR, 2019, pg. 1). All these trends occurred despite the increasing prominence of ESD within educational systems worldwide.

On the one hand, it would be too hasty to attest current ESD practices a failure in promoting SD. The emergence and development of SD-related challenges is highly complex, multicausal, and hence difficult to influence (e.g. Underdal, 2010). Changing or transcending prevalent paradigms toward SD, as intended by ESD, might be the most effective leverage point, yet is also the one that is most difficult to control, as it interferes with other factors that contribute to stabilizing the status quo (Meadows, 1999; Abson et al., 2017). Moreover, there is good ground to assume that ESD has not yet reached all citizens equally: Manteaw (2012), for instance, argues that ESD is "neither seen nor heard of in most of Africa" (p. 376). Omisore et al. (2017) confirm this impression, showing that out of 450 students at a Southwestern university in Nigeria, only 4.2% had good knowledge of the SDGs. In Western countries, there is still space for expansion, too: In Germany, for example, a national monitoring has been set up in order to analyze the extent and quality of ESD implementation in all educational areas. Based on an analysis of key documents in early childhood education, school education and higher education over a period of five years (2011–2016), the monitoring "indicates that, at the level of key documents, the goal of a broad implementation of ESD is not yet achieved" (Singer-Brodowski et al., 2019, p. 492). In sum, this evidence gives reason to infer that *more* ESD might be a way to address the current global challenges.

On the other hand, interpreting the continuous deterioration of global environmental and socio-economic problems as a mere result of a lack of ESD would be myopic. It would be ignorant, for instance, to the observation that environmental awareness and knowledge has significantly risen over the last decades, yet this awareness and knowledge do not translate into more sustainable behavior. Again, Germany might exemplify this paradoxical trend: For every two years since 1996, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (German: Bundesministerium für Umwelt, Naturschutz, Bau und nukleare Sicherheit [BMU]) and the Federal Environment Agency (German: Umweltbundesamt [UBA]) conduct an empirical study on the German population's environmental awareness. As early as 2008, the study reported high levels of environmental awareness and knowledge: 91% of the population rated environmental protection as important, another 80 % demonstrated an awareness on the risks and consequences of global warming (UBA, 2008). The most recent report corroborates the impression that environmental protection and climate action are of high importance for the majority of Germans (BMU & UBA, 2019). In addition, a PISA study found that German pupils demonstrated high levels of environmental knowledge, including knowledge about the causes for environmental problems (Flohr & Pham, 2007). Nevertheless, still in 2019, Germany remains one of the major global contributors to greenhouse gas emissions (Global Carbon Atlas, 2019)

and has not shown signs of peaking yet (see figure 3). This trend is also reflected by individuals' environmental behavior: As was the case in 2008 (UBA, 2008), recent studies demonstrate that even those individuals who show strong environmental awareness and knowledge, having relatively few personal obstacles for SD-related action, and perceiving the implementation of SD as desirable, overall do not act differently in comparison to others (Kleinhückelkotten & Moser, 2016; Grund & Brock, 2019). This gap between knowledge and intentions on the one hand and action on the other hand is not limited to environmental concerns. Similar observations have been made concerning behaviors motivated by socio-economic justice, such as buying fair-trade products (Chatzidakis et al., 2007). In sum, these studies suggest that ESD did have an impact in terms of raising people's awareness for and knowledge about the causes of sustainability-related problems. However, it seems to have failed in equipping them with the required competencies, understood as "a roughly specialized system of abilities, proficiencies or skills that are necessary or sufficient" (Weinert, 2001, p. 45) to engage in SD-related action.

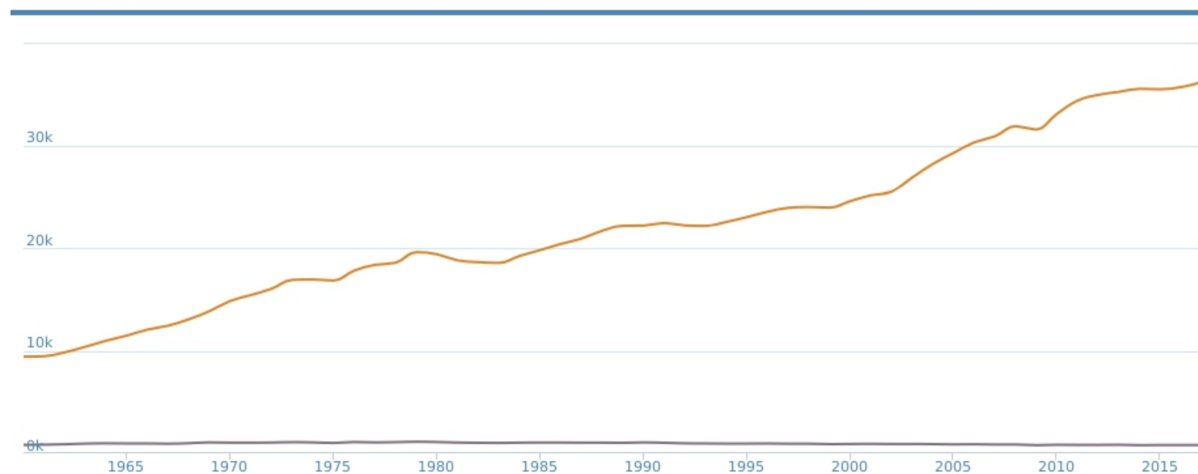


Figure 3: Development of carbon dioxide emissions in Germany. Retrieved from http://www.globalcarbonatlas.org/en/CO2-emissions.

Apparently, implementing educational actions seeking to promote learners' sustainability does not automatically lead to the "certain kind of education that will save us" and realize the educational paradigm change scholars have ascribed to it. In fact, the seemingly homogeneous 'education paradigm' is actually a highly heterogeneous concept, comprising different understandings and approaches that are applied at different levels of education (e.g. Sterling, 2004; Scott, 2015a, 2015b). ESD can both mean delivering a single three-hours intervention during which pupils reflect on sustainable consumption (Balderjahn & Seegebarth, 2018) or building entire institutions that are devoted to the purpose of SD (Sterling et al., 2018) In other words, there are good reasons to assume that there is a gradient of "radicalism" or "transformative aspiration" according to which different understandings of ESD can be distinguished.

This is where the criticism toward current ESD practices comes into play. At least three lines of criticism towards these practices can be identified: The first line of criticism emphasizes that much of what characterizes current ESD theory and practice might not be 'radical' enough to promote social

change. On the contrary, scholars like John Huckle and Arjen Wals (2015) have even conceived of many of the current ESD approaches and conceptualizations as "business as usual", blocking instead of propelling transitions toward genuine sustainability. In this sense, more of this kind of ESD seems to be inappropriate in order to address the present global challenges. The second line of criticism problematizes the narrow idealistic and theoretical framing and identified a shortcoming with regard to critical thinking within ESD practices. It is, for example, argued that ESD insufficiently questions neoliberal discourses and the concept of development in its general sense (Huckle & Wals, 2015), fails in demarcating itself from its colonial legacy particularly in so-called developing countries (Tikly, 2019), and does not promote environmental protection as a result of nature's intrinsic value (e.g. Kopnina & Meijers, 2014). The third line of criticism rather focuses on the learning outcomes envisaged by ESD practices. In this line, it is argued that current ESD tends to overemphasize cognitive skills and information transmission related to sustainability-related topics (e.g. Maiteny, 2005; Shephard, 2008; Fischer & Barth, 2014a). Affective outcomes and skills have been especially neglected so far (see also Brundiers & Wiek, 2017), although these are considered essential within the context of transformative sustainability learning (Sipos et al., 2008). Connected to these comments is a search for appropriate learning activities and pedagogies in which the teaching and acquisition of such skills can take place (e.g. Brundiers & Wiek, 2017; Shephard et al., 2019).

It is the latter line of thought in which this thesis is rooted. It shares the assumption that education carries a great potential in bringing about SD; however, this potential has not yet been unleashed, particularly due to a widespread ignorance of the role of affective-motivational processes for sustainability-oriented action. And while there seems to be growing awareness for the need of building affective-motivational competencies for SD outside of academia, too (UNESCO, 2017), it does remain an open question how and by means of which learning activities such competence can be systematically developed.

Mindfulness meditation practices – defined as the cultivation of an unbiased experience that emerges through intentional and continuous awareness of momentary events and processes, necessarily embedded within an attitude of openness, benevolence, and compassion (Grossman 2010, 2015) - have lately received growing attention in the broader educational discourse for this purpose (e.g. Hyland, 2011). It is argued that such practices can help individuals to get access to their inner states and processes, which in turn enables them to deal with these states and processes more consciously and hence act in a more self-determined way (ibid.). Furthermore, proponents of mindfulness practices have suggested that accessing inner states and processes carries a potential to cultivate broader ethical virtues (Grossman, 2015; Monteiro et al., 2015). As a consequence, the introduction of mindfulness practices into education is supposed to place the cultivation of moral and civic virtues at the forefront (Simpson, 2017). Mindfulness practices, so is reasoned, can support such a transformation by clarifying and challenging values, thereby contributing to a radical ethical reorientation of society. Such deliberations have been a major driver in the introduction of mindfulness training into ESD. Against this backdrop, mindfulness practices have explicitly been promoted by scholars, practitioners and mindfulness networks as a new way to address ecological and socio-economic challenges in ESD settings (e.g. Gugerli-Dolder et al., 2013; Wamsler et al., 2018). More precisely, it is seen to potentially strengthen peoples' ability to deliberately focus their mind in a way that they become more

sensitive for their own mindsets, values, emotions, and ensuing actions and direct those toward the vision of a sustainable development (e.g. Wamsler & Brink, 2018; Wamsler et al, 2018). Notwithstanding these deliberations, empirical research on the potential of mindfulness practices as ESD learning activities to stimulate affective-motivational competencies has so far received limited attention.

For this reason, the present thesis sets out to inquire into the potential of mindfulness-based learning activities for developing personal competencies for sustainable consumption (SC), understood as those abilities, proficiencies, or skills related to inner states and processes that are necessary or sufficient to engage in SC (Frank & Stanszus, 2019). It is composed of five sections: Section 3 provides the theoretical background for the empirical work conducted during the period of research for the thesis. This section unfolds the three theoretical pillars that yield the foundation for the thesis, namely (1) the concept of sustainable consumption and Education for Sustainable Consumption (ESC) as an important means to promote sustainable consumption (3.1.), (2) competency-based education for sustainable consumption and personal competencies for sustainable consumption as an important, yet so far neglected set of competencies for ESC (3.2.), and (3) mindfulness practice as a promising learning activity to stimulate personal competencies (3.3.). Section 4 summarizes the empirical findings of the thesis, as they are elaborated in detail in the seven empirical journal publications (partly) stemming from this dissertation. One sub-section is dedicated to each article, before the overall results are summed up in sub-section 4.5. Limitations of the thesis are addressed in section 5, distinguishing general (6.1.) methodical and content-related (6.2.), and practical limitations of the research undertaken. Sum practical implications and a research outlook are given in section 6, before the dissertation is completed with a personal reflection on the research procedure (section 7).

3. Theoretical background

3.1. Sustainable Consumption and Education for Sustainable Consumption

3.1.1. Sustainable Consumption

The concept of consumption is a controversially discussed one. Depending on their disciplinary background and practical interests, scholars have defined and looked at consumption in different ways (e.g. Fischer et al., 2011; Graeber, 2011; Evans, 2018). Of particular interest for sustainability and ESD scholars is individual consumer behavior. It is understood here as all actions of procurement, use, and disposal of things and services (Fischer et al., 2011). Following Kaufmann-Hayoz et al.'s (2012) terminological suggestions, I will "use the term consumer behavior in its superordinated meaning, and consumer actions or acts of consumption to designate specific parts or analytical units of consumer behavior" (ibid., p. 83 f.). Consumptive acts are often habitualized, meaning that they are repeatedly performed without necessarily being guided by conscious decisions (Klöckner & Matthies, 2004; Verplanken & Wood, 2006). For this reason, I will also speak of 'consumer patterns' to describe habitualized consumer behaviors (see also Klöckner & Matthies, 2004).

Individual consumer behavior is accompanied by environmental and socio-economic impacts and have repeatedly been considered a main contributor to the current environmental and socio-economic threats faced by human society (Geiger et al., 2018). The unsustainability of consumption manifests itself in at least two respects: Firstly, the consumption patterns of large segments of the population in consumer societies exert immense stress on the environment. For one, this stress is a direct result of the usage of consumer goods (e.g. CO_2 emissions when driving a car); for another, indirect environmental impacts result from their production and disposal (European Environmental Agency [EEA], 2010). Secondly, a considerable part of the world population is deprived of fulfilling even their most basic needs, consequences of which include poverty-induced environmental degradation (Princen, 1999) or engagement in precarious labor activities, with child labor and modern slavery being its most problematic forms (Crane, 2013; Lewis et al., 2015; Kara, 2017). At present, an estimated 218 million children between 5 and 17 years are in employment (International Labor Organization [ILO], 2019a) and 24,9 million people are in forced labor (ILO, 2019b), mainly concentrated in developing countries. Industrialized countries generate by far the most significant consumption impacts per capita (Ivanova et al., 2015). However, highly populated countries like China and India have experienced strong economic growth during the last decades, resulting in higher individual purchasing power, consumer activities, and hence increasing negative environmental impacts. According to the Worldwatch Institute (2019), developing countries also have the greatest potential to further intensify individual consumption. To date, China and India's consumer class constitutes only 16% of the country's population, (Europe: 89 %). Indeed, in most developing countries the consumer class accounts for less than half of the population, suggesting considerable potential for future growth.

In light of this trend, consumption levels and patterns have been identified as major challenges towards sustainable development (Alfredsson et al., 2018; Bengtsson et al., 2018). Preceded by increasing debates on the social and environmental impacts especially of Western lifestyles (e.g. Meadows et al., 1972) and rooted in the Brundlandt definition of SD as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development [WCED], 1987), the concept of sustainable consumption (SC) was firstly introduced in chapter 4 of the Agenda 21 (UN, 1993). Following the Rio+10 Summit in Johannesburg ten years later, the Marrakesh process on sustainable consumption and production was initiated, a 10-year program to promote sustainable consumption (UNDESA & United Nations Division for Sustainable Development [UNDSD], 2002). In article 97 of the final Rio+20 declaration entitled “The Future We Want”, the urge to promote sustainable consumption and production has been reaffirmed, resulting in the agreement to establish another 10-year framework of programs on sustainable consumption and production (UN, 2012: Art. 97). In 2015, finally, to “ensure sustainable consumption and production patterns” was declared as one of the 17 SDGs (UN, 2015). The relevance of SC is also reflected on the national level: As to date, a total of 108 national policies promoting a shift toward sustainable consumption and production have been established (UN, 2018).

What exactly SC is, however, remains ambiguous and controversially discussed (Fischer et al., 2011; Adomßent et al., 2014; Lim, 2017). In 1994, an early definition of SC has been suggested by the *Oslo Roundtable on Sustainable Production and Consumption,* defining it as

> *“the use of goods and services that respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations”* (Norwegian Ministry of the Environment, 1994, ch. 1.2.).

This definition is rooted in two widely accepted anchor points that are already mentioned in the Brundtland definition of sustainable development: the concept of needs and the idea of limitations concerning individual consumption. Nevertheless, the Oslo roundtable definition has also received severe criticism from within the academic field, and several attempts have been made to specify the concept (Geiger et al., 2018). Fischer et al. (2011), for example, criticize the Oslo definition giving three reasons, namely that it (i) did not sufficiently differentiate between production and consumption, hence not allowing for a clear demarcation of individual consumptive acts, (ii), set too specific, yet arbitrary measures in terms of undesirable impacts, such as the use of toxic materials, emissions of waste etc., and (iii) did not elaborate the key concepts of basic needs and quality of life. In order to solve these problems, they propose to understand SC as consumption that contributes to create or sustain external conditions that allow all human beings today and in the future to meet their objective needs (Fischer et al., 2011; Michelsen & Fischer, 2013)[2].

2 This understanding of sustainable consumption can also be questioned. The most radical criticism is mentioned by Lim (2017), holding that “critics view sustainable consumption as an oxymoron because to ‘consume’ something means to use it up or destroy it – the complete opposite of ‘sustainability’” (p. 69). While it would go beyond the scope of this dissertation to unfold the definitory controversy on SC, both perspectives can be reconciliated by acknowledging that SC is not always about choosing in between different goods and services. Sometimes, the most sustainable action might be not to consume at all. Fischer et al. (2011) and later Fischer and Nemnich (2012) have taken this into consideration.

An essential clarification of this definition stems from Di Giulio et al. (2011) and later Di Giulio and Fuchs (2014). According to the authors, individuals perform consumptive actions "in pursuit of certain goals (see also Kaufmann-Hayoz et al. 2012), and these goals are individually felt needs" (p. 187). Following Max-Neef (1992), they argue that consumed things and services function as satisfiers for these felt needs: "As such, individuals intend consumptive acts to improve their lives in one way or another" (Di Giulio & Fuchs, 2014, p. 187). They are "thus always linked to individual conceptions of a good life, even if these ideas may not be well thought out and may not be explicit" (ibid.). Di Giulio et al. (2011) further differentiate these individually felt needs and distinguish objective needs from subjective desires. They define objective needs as those universal interests the satisfaction of which is a precondition for living a good life. Such objective needs can be derived from anthropological theories of a good life, for instance represented through the works of Manfred Max-Neef (1991) or Martha Nussbaum, and Amartya Sen (1996). Following these scholars, universal aspects of a good life "reach from not dying prematurely, to health and bodily integrity, sensual functionings, the ability to form emotional attachments, and to having control over one's environment" (Di Giulio & Fuchs, 2014) and comprise the need for subsistence, protection, affection, understanding, participation, idleness, creation, identity, and freedom (Max-Neef, 1991). Subjective desires, in contrast, are interests that are not related to universal aspects of a good life, although they might be of high (perceived) relevance for the individual. The core idea of this distinction is the following: On the one hand, all humans have objective needs whose satisfaction is a precondition for living a good life. On the other hand, their satisfaction is not necessarily sufficient for the individual to experience a high quality of life, as this quality is also determined by subjective factors (see also Costanza et al., 2007). For this reason, individuals will perform (consumptive) acts that will seemingly allow them to improve their perceived quality of life, supposing that they encounter the external conditions to meet their objective needs, so that they are able to engage in these actions.

This is where the normative concept of SC comes into play. As outlined before, individual consumptive acts have an impact on the socio-economic and environmental surroundings in which they are embedded. It lies at the very heart of the vision of sustainable development that these surroundings are defined by critical limits insofar as they are supposed to provide the external conditions for all humans to meet their objective needs. Empirical assessments of these limits have been numerously suggested by scholars over the last years, such as the ecological footprint (Wackernagel & Rees, 1996), an integrated footprint model (Galli et al., 2012), or planetary boundaries (Rockström et al., 2009; Steffen et al., 2015) for environmental boundaries and the

It is also worth mentioning that this definition is predicated upon an understanding of SD that has been described as "weak sustainability", in opposition to "strong sustainability" (Ott & Döring, 2011). Among other features, weak sustainability is characterized by its anthropocentrism, that is to say that the vision of this sustainability exclusively takes the needs of human beings into account and results out of the interest to make sure that these needs can be satisfied (e.g. Conrad, 2000; Grunwald & Kopfmüller, 2006). Strong sustainability, in contrast, is based on a physiocentric perspective, that is to say that it accords nature a value in itself, independently of its use for human beings (e.g. Piechocki, 2001). In particular, the needs of other sentient beings matter in this perspective, not only those of humans. When rooting my thesis in a weak understanding of sustainability, I do not want to suggest a preference for this conceptualization. Unlike the strong understanding, however, weak sustainability seems to represent a minimal consensus in regard to the vision for societal development, hence making this thesis more compatible to the prevalent discourses on sustainability.

capability approach (Sen & Nussbaum, 1996; Comim et al., 2007), the definition of fundamental human needs (Max-Neef, 1991), or the specification of concrete indicators for (minimum) living standards and livelihoods (e.g. Cole et al., 2014) for socio-economic limits. Exceeding (or undercutting) these limits deprives individuals of the possibility to meet their objective needs and hence to live a good life, so that engaging in consumptive acts causing this deprivation cannot be considered sustainable. In the words of Di Giulio and Fuchs (2014):

> *"It should be the duty of consumers to consume only that quality and quantity of natural and social resources that allows others to also have sufficient access to them. Accordingly, a definition of sustainable consumption should extend to both a minimum level of natural and social resources as stated above and a maximum level of natural and social resources that individuals are entitled to have access to. In other words, we end up with the conclusion that we have to define not only minimum but also maximum standards for consumption. Sustainable consumption, then, is consumption respecting these minima and maxima. To give a name to this idea of defining and respecting minimal and maximal standards of consumption we use the metaphor of 'consumption corridors'" (p. 186-187).*

SC as understood in this thesis is hence consumption that takes place in between these "consumption corridors", thereby reconciling the subjectively perceived quality of life and the maintenance of external conditions allowing individuals (today and in the future) to meet their objective needs (see figure 4; the degree of sustainability is indicated in forms of the negative socio-economic and environmental impact of a particular consumptive act). Construed in this manner, the concept of SC does not prescribe specific behaviors, but rather provides a framework which, on the one hand, can comprise a heterogeneity of specific approaches toward SC while, on the other hand, provides minimal criteria for evaluating specific actions in regard to their contribution to the end of sustainability.

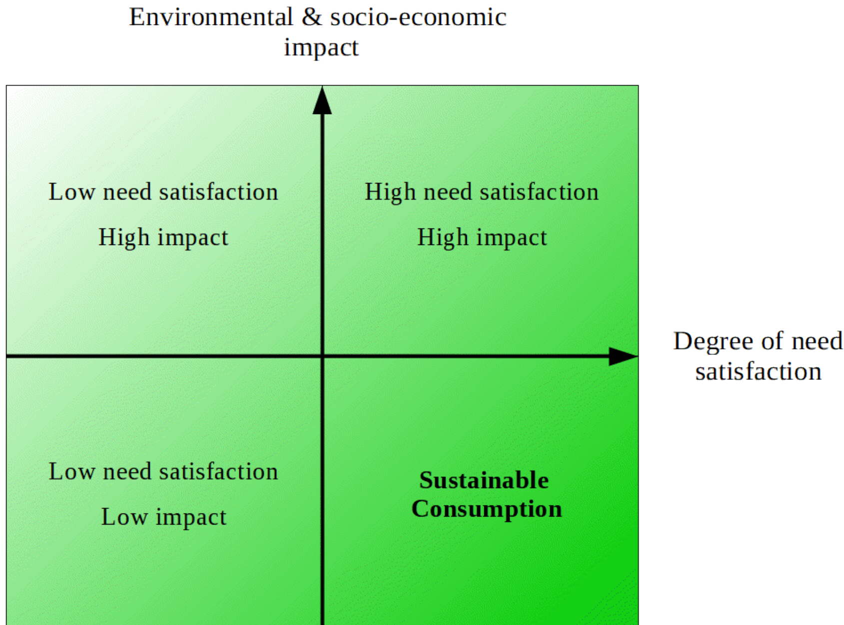


Figure 4: Sustainable consumption as the reconciliation of personal need satisfaction while respecting socio-economic and environmental boundaries.

3.1.2. Education for Sustainable Consumption

As is the case for the general transformation toward SD, education is considered being "one of the most powerful tools" (Organization for Economic Co-Operation and Development [OECD], 2008, p. 35) to foster sustainable consumption. Since the beginning of the 21st century, SC has emerged as a cross-cutting theme and a key concern within the debate about ESD and has been conceptualized as Education for Sustainable Consumption (ESC) as a subfield of ESD (Fien, 2000). In forms of a political agenda, the UN Decade on ESD explicitly aimed to develop "knowledgeable consumers who purchase goods with low lifecycle impacts and who use their purchasing power to support corporate social and environmental responsibility and sustainable business practices" (UNESCO, 2005, p. 29). Lead by the Italian government, in 2007, the UN task force on ESC was initiated, a 10-year program following the intention to anchor ESC in formal education (Italian Ministry for the Environment, Land and Sea [IMELS], 2007). The Rio+20 final document emphasized our "particular responsibility to nurture sustainable development and sustainable consumption and production patterns" (UN, 2012: Art. 14) and called on the education system to equip a new generation of students with the capacities deemed essential to engage in this cause (UN, 2012, Art. 101). Two years later, this intention was reaffirmed by the UNESCOs' *Roadmap for implementing the Global Action Program on Education for Sustainable Development* (2014) and manifested within SDG 4.7 and 12.8, demanding that

> *"all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development" (4.7)* and "*that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature"* (12.8).

The intention to develop learners' knowledge and capacities necessary for engaging in SC and thereby directing individuals' consumer behaviors form a part of a tradition of ESD that has been described as *learning for SD* (hereinafter ESD 1) – in opposition to *learning as SD* (hereinafter ESD 2)(Vare & Scott, 2007). This tradition is rooted in the idea that both the need for and the way to achieve SD can be clearly identified based on expert knowledge. The role of ESD is then to equip learners with the knowledge and skills needed to act in accordance with the principles of SD. The key aim of ESD in this sense is hence to facilitate changes of individuals' behaviors. Much of the political discourse on ESD can be interpreted as ESD 1 (Singer-Brodowski, 2016a, 2016b).

Within the scholarly debate, at least three lines of criticism towards such an interpretation of ESD can be found. The first line of criticism concerns the educational foundation that underlies ESD 1. Its inherent intention to direct individuals' behaviors toward the normative idea of SD, so is argued, risks to indoctrinate learners for political purposes by conveying predetermined attitudes, presumptions and values (e.g. Jickling, 1992; Jickling & Spork, 1998). It instrumentalizes learners for the goal of a societal transformation instead of encouraging them to develop their own political perspectives in a neutral and independent way (Wals, 2012; Singer-Brodowski, 2016a, 2016b), which is conceived as the genuine purpose of education (see also section 3.2.3.). Especially in the German debate on ESD, scholars, practitioners, and policy makers alike have emphasized the pedagogical improbity of

educational programs envisaging behavior change by referring to the Beutelsbach consensus of 1976, constituting a set of principles for political education (see Wehling, 1977). According to the principles of this consensus, it is prohibited to impart desirable opinions on learners and thereby hindering them from arriving at an independent judgment. Instead, matters which are controversial in intellectual and political affairs must also be taught as controversial in educational instruction. Furthermore, the Beutelsbach consensus foresees that learners must be put in a position to analyze a political situation and to assess how their own personal interests are affected, as well as to seek means and ways to influence the political situation they have identified according to their personal interests. Rooted in these ideas, scholars like de Haan et al. (2008) or Künzli David (2007) warned to interpret ESD as a means to assert norms and goals that have not been developed and acknowledged in participatory processes. The second line of criticism can be subsumed under the term *educationalization* (e.g. Proske, 2001; Bridges, 2008). This term refers to the tendency of political institutions to delegate the responsibility to find solutions for political, environmental, and socio-economic problems to the educational system. Proponents of this position do not object the general idea of dealing with these topics within educational frameworks; their critique rather concerns the risk to overemphasize learners' responsibility for contemporary societal challenges and finding possible solutions to these, while neglecting the role of other actors and institutions (e.g. Jucker, 2002). Moreover, they point out that the solutions of these challenges cannot be the aim of related educational programs. Instead, they argue that the value of educational programs must be measured in terms of learning outcomes, that is to say according to educational criteria (Schnack, 1996, 2000). The third line of criticism, finally, refers to the conceptual controversy that surrounds the ideas of sustainability and SD, as well as the identification of and possible solutions for sustainability-related problems (e.g. de Haan et al., 2008). In many cases, these problems are so-called wicked problems (Head, 2008; Incropera, 2015), that is to say problems that carry a high societal risk, yet are difficult or impossible to solve because of incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden to solve them, and their interconnectedness with other problems. In other words, there is often no single solution to sustainability-related problems. In light of this complexity, it seems presumptuous to direct individuals' behaviors and prescribe definite actions within educational settings. Instead, ESD should make sure that individuals remain capable of making decisions, taking action and develop long-term strategies in the face of these risks, uncertainties and overcomplex amounts of information (ibid.).

The type of ESD reflected in these lines of criticism has been called emancipatory education (ESD 2) (Vare & Scott, 2007; Wals, 2012). It aims to enable learners to critically reflect the origin of certain discourses and alleged expert knowledge on SD, develop a self-determined and independent stance to these discourses and build the "abilities to make sound choices in the face of the inherent complexity and uncertainty of the future" (Vare & Scott, 2007, p. 194). In this sense, ESD does not envisage to stimulate behavior change among students, but primarily intends to stimulate learning processes among students that allow them to engage in sustainability-related debates.

Insofar as ESC aims to change individual consumer patterns, it seems to show a particular proclivity toward ESD 1 and has hence become the object of severe criticism. Analogously to the general critique toward ESD 1, three concerns have been expressed: Firstly, education envisaging behavior

change risks to contravene the principle of educational neutrality. In Germany, for example, this fear has been made explicit by the *conference of ministers of education* (German: Kultusministerkonferenz): In their resolution from 2013, they rejected to suggest or prescribe concrete consumer actions and highlighted the "imperative of neutrality" (Kultusministerkonferenz, 2013, p. 6), referring to the educational principles for consumer education defined within the aforementioned Beutelsbacher consensus. Secondly, scholars have pointed to ESC's "inherent susceptibility to either neglect or oversimplify the complex interplay of structural, political, and sociocultural factors underpinning unsustainable development" (Fischer & Barth, 2014a, p. 193) by privatizing consumption and putting moral pressure on the individual. Instead of intending to direct individual consumer behavior toward a certain direction, advocates of this position hold that ESC in an emancipatory sense would rather aim at developing capacities to engage in public deliberation and political decision-making processes (e.g. Heidbrink & Reidel, 2011). Thirdly, it is argued that ESC does not do justice to the conceptual complexity of SC. Prescribing and directing individuals toward certain consumer choices – shifting one's eating behavior toward a plant-based diet, for instance (Roberts, 2009) – presupposes precise criteria allowing to estimate the sustainability of different consumptive acts. Yet despite the SC frameworks outlined in section 3.1.1., assessing the quality of needs satisfaction and overall impact of single consumptive acts is far from being trivial and differs according to the criteria taken into consideration and the consumption phase one looks at (e.g. Costanza et al., 2007; Pepper, Jackson & Uzzell, 2009; Geiger et al., 2018). For this reason, scholars have called contemporary consumption an "archetypal 'wicked problem'" (Davies et al., 2010, p. 59). Adding to this, it has been suggested that the actual impact of a consumptive act is not sufficient to call it sustainable or unsustainable (Stern, 2000; Fischer et al., 2011; Michelsen & Fischer, 2013). Instead, they argue that in order to determine the (un)sustainability of specific acts, one also needs to take the underlying intention into account. Only if the acts are performed with a sustainability-oriented intention, they can be genuinely called sustainable. Proponents of an emancipatory ESC therefore reject the idea that experts can propose precise prescriptions for SC and doubt that the interaction between intended and actual impacts of consumer behavior can be unanimously determined (e.g. Grunwald, 2010). Instead, they suggest that individuals play a critical role in (co-)developing and experimenting with solutions for unsustainable consumption. Consequently, learning processes are supposed to equip individuals with the abilities to participate in these processes (Siebenhüner, 2011; Hübner, 2012).

However, certain social and environmental challenges seem in fact relatively well understood among the scientific community (e.g. de Haan et al., 2008). Moreover, it is hard to dispute the general impact of individual consumer behavior on these challenges and hence the highly probable necessity to change these (Alfredsson et al., 2018; Bengtsson et al., 2018). In many cases, identifying the actual impact of consumer activities is not all too controversial: there is, for example, good ground to distinguish between "peanuts" and "key points" of SC, that is to say behaviors that are particularly problematic in terms of their social and environmental impact (Bilharz, 2009; Geiger et al., 2017), such as food, mobility, housing, or clothing. Moreover, for certain behaviors, such as airplane traveling, motorized private transport, or high amounts of meat consumption, the negative impacts on the environment are very well known and widely acknowledged (Ekardt, 2017), and there is often agreed knowledge as to how consumptive acts in these areas can be performed in a more sustainable

way. Evidence shows, however, that less environmentally damaging behaviors are sometimes not adapted due to a lack of knowledge and practical skills (e.g. knowledge about food alternatives and cooking skills, see Frank, 2017). Education in the sense of ESD 2 alone does not contribute to filling such gaps, which is why some scholars explicitly defended the necessity to convey knowledge about the relevance of different consumer choices to individuals (Bilharz & Schmitt, 2011). For this reason, some environmental educators understood ESD 1 and ESD 2 as two complementary rather than opposing learning approaches (Vare & Scott, 2007; Sterling, 2010).

Acknowledging the value of both instrumental and emancipatory ESC, Fischer and colleagues (Fischer et al., 2011; Barth & Fischer, 2012;; Michelsen & Fischer, 2013; Fischer & Barth, 2014a) have proposed a competency-based approach toward ESC that includes both behavioral and learning purposes: For one, it aims to stimulate the acquisition of competencies enabling learners to consume in such a way that their behavioral impacts correspond to their sustainability-related intentions (Fischer & Nemnich, 2012). This can also include not consuming as a way to overall reduce consumption levels; for another, it intends to initiate reflective processes on prevailing societal norms and empowers learners to relate their own values and purposes in life to these. In particular, ESC does not only address learners as consumers, but also as consumer citizens (Fien, 2000; Michelsen & Fischer, 2013). In other words, ESC allows learners to acquire competencies that enable them to address the social phenomenon of consumption as a whole, for example in their professional roles, in forms of social activism etc. More generally, ESC in this sense can also stimulate competencies that go beyond the sphere of their individual consumption, but "seeks to enhance individuals' capacity to engage with more fundamental questions that also apply to other domains of life" (Fischer & Barth, 2014a, p. 198).

Rooting ESC in a competency-based educational approach requires to specify those competencies learners need to develop to engage in the aforementioned causes. The following section is dedicated to this specification.

3.2. From challenges of to personal competencies for sustainable consumption behavior and learning

Competency-based approaches are by no means exclusive to the domain of ESC. There has been a long tradition of competency-based learning and education in the larger educational discourse and practice, beginning in the late 1910s (Le et al., 2014). However, it was not before the 1970s that systematic conceptualizations of these approaches were published (Hall, 1976; Burke, 1989), and it took two more decades before they received mainstream acceptance throughout a broader paradigm shift from "teaching to learning" within the Western (especially academic) educational system (Barr & Tagg, 1995). Roughly speaking, the core message of competency-based learning is that it is not primarily the content that is transmitted to learners, but the learning outcomes in forms of learners' acquired knowledge, skills, abilities, and proficiencies indicating the quality of education. More precisely, the overall aim of education should be to empower individuals to use their knowledge, skills, abilities, and proficiencies, so that they can meet the complex demands they face both in their private and professional lives, and the term competency has increasingly been used to refer to this

empowerment[3] (Rychen & Salganik, 2003; OECD, 2005). Following this idea, several lists of competencies have been developed to specify those knowledges, skills, abilities, and proficiencies individuals need to meet the demands they have, ranging from general key competencies (OECD, 2005), to specific professional competencies (for example leadership [Brownwell, 2006], safety and health [Institution of Occupational Safety and Health, 2019], engineering [North Carolina State University, n.d.]), to competency frameworks aiming to specify what it needs to act in a sustainable way (see sub-section 3.2.1). Over the last decades, these so-called competency frameworks have been increasingly used to guide and inform the design of educational programs and their assessment (Hyland, 1997).

Much has been written – and criticized – about competency-based education. Among other reasons, they have come under attack for their definitory vagueness and poor demarcation toward other concepts (Wilhelm & Nickolaus, 2013), their behavioristic nature (Hyland, 1997; Talbot, 2004), their closeness to economic interests (Krautz, 2009), or their theoretical and empirical unfoundedness (ibid.). Furthermore, it seems difficult to empirically assess competencies, especially those related to sustainable development (Barth, 2007; Rieckmann, 2016). While I am going to address some of these criticisms in the limitations section, my purpose in the following sub-section (3.2.1.) is solely to look at SD/SC-related competency frameworks as indicators for those knowledges, skills, abilities, and proficiencies that are considered sufficient or necessary in the scholarly literature in order to consume in a sustainable way and that should therefore guide the design of educational programs. I will then juxtapose the suggested lists to an analysis of some empirical research looking at actual difficulties individuals face when intending to consume sustainably (3.2.2.) and learn about SC (3.2.3.). From this juxtaposition, I will then suggest a list of personal competencies for SC, understood as abilities, proficiencies, or skills related to inner states and processes that can be considered necessary or sufficient to engage with SC (Frank & Stanszus, 2019). These competencies are empirically grounded in the analysis of SC-related difficulties, yet have been neglected in the prevailing competency frameworks.

3 Especially within the scholarly ESD discourse, there is still much ambiguity concerning the use of the term competency and its demarcation to related concepts, such as skills, literacy, abilities, or capabilities (e.g. Fischer & Barth, 2014b; Shephard et al., 2018). This implies two consequences: On the one hand, it is not always clear whether scholars refer to the same idea when using the term competency (see Shephard et al., 2018); on the other hand, different terms might be used in order to refer to the same idea. In this vein, Fischer and Barth (2014b) have argued that although "different terms are used, such as skills [...], literacy [...], competencies [...] or capabilities […], a broad consensus has emerged on the main aspects to be considered” (p. 45). Following Shephard et al.'s (2018) call for a clear definition of the concepts at stake, within the framework of this thesis, I understand competencies as “a roughly specialized system of abilities, proficiencies, or skills that are necessary or sufficient to reach a specific goal” (Weinert, 2001, p. 45) (precise definitions of the term personal competency for SC follow below). This implies a certain overlap in between the terms at stake: A skill, for example, can also be a competency, insofar as it is necessary or sufficient to reach a specific goal.

In order to avoid misinterpretations of other authors, I will reproduce their applied terminology in the remainder of this framework paper, insofar as they contribute to the identification of "the main aspects to be considered" when looking at personal competencies for SC.

3.2.1. Competencies for sustainable consumption

Over the last decades, a series of competency frameworks have been developed listing a variety of competencies the acquisition of which, they claim, will prepare learners for the demands of SD and should hence guide and inform the design of ESD programs. In light of the relevance of SC for sustainable development, however, there have been little attempts to identify overarching consumption-related competencies. A few suggestions have been made to describe consumer competency for specific areas of consumption, such as energy use (Bonnemaizon & Batat, 2011) or nutrition (Heseker, 2005). Thoresen et al. (2005) have provided a first list of overarching competencies for consumer citizenship. Fischer and Barth's (2014a) key competency approach synthesizes these preliminary works and "complements and re-orientates them in light of the specific demands of sustainable consumption" (Barth & Fischer, 2012, p. 73). The authors provide a list of seven key competencies (see table 2) whose acquisition is supposed to enable individuals to engage in the cause of SC, both indirectly (as consumer citizens) and directly (as private consumers). These key competencies intend to form a basis for designing learning processes that aim to systematically improve individuals critical thinking, self-determination and self-reflexivity.

Table 2: Key competencies for sustainable consumption (KCSCs). Taken from Frank et al. (2019a).

Key competency		**Exemplary dispositions**
Act autonomously		
KCSC 1: ***Reflection***	Competency to reflect individual needs and cultural orientations	• knowledge of how preferences are culturally contextualized and shaped • ability to critically engage with commodification processes • willingness to explore and scrutinize one's own aspirations, wants and needs, as well as established habits and practices of their satisfaction
KCSC 2: ***Action***	Competency to plan, implement, and evaluate consumption-related activities	• knowledge of criteria to identify sustainable options • ability to use criteria to assess different consumption choices • willingness to act responsibly in consumption-related activities
Interact in heterogeneous groups		
KCSC 3: ***Role-Taking***	Competency to critically take on one's role as an active stakeholder in the market	• knowledge of the roles, influence, rights and responsibilities of different actors within the market • ability to take the perspectives of other market actors • willingness to forge strategic alliances with other actors to achieve common goals
KCSC 4: ***Communi-cation***	Competency to communicate sustainable consumption	• knowledge of ideas, values and different conceptions of sustainable consumption • ability (cognitive, emphatic) to communicate this knowledge with diverse audiences • willingness to communicate with diverse conversational partners and audiences

Use tools interactively		
KCSC 5: ***Know-ledges***	Competency to use, edit and share different forms of knowledge	• knowledge of different forms of “knowing” • ability to search for and evaluate the validity of the information • willingness to endure tensions that arise from exposure to contradicting information
KCSC 6: ***ICT***	Competency to use Information and Communication Technology (ICT) interactively	• knowledge of opportunities and risks of ICTs • ability to use the potential of ICTs for social interaction • willingness to engage critically with ICT and its usage to share information with others
KCSC 7: ***Vision***	Competency to think visionary and to consider interrelatedness	• knowledge of the interlinkages between consumption and production systems • ability to appraise the implications of one’s own consumption choices for others today and in the future • willingness to conceive of the future as principally open and changeable

Most of the prevailing competency frameworks are not specifically tailored to the cause of SC, but refer to competencies considered by scholars as important for promoting SD more generally (including SC) (Barth et al., 2007; Brundiers et al., 2010; de Haan, 2010; Frisk & Larson, 2011; Wiek et al., 2011; Rieckmann, 2012; Lambrechts et al., 2013; Lans et al., 2014; Murga-Menoyo, 2014). Lozano et al. (2017) provide a comprehensive overview of these prevailing conceptualizations. In total, the authors identify twelve, partly interwoven competencies featured in these competency frameworks. They comprise

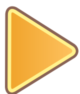
- *systems thinking*, describing the ability to understand and (scientifically) analyze complex systems,
- *interdisciplinary work*, meaning the ability to work in interdisciplinary contexts by drawing on knowledge and methods from different disciplines
- *anticipatory thinking*, which includes the envisioning and evaluation of possible futures and the ability to deal with risks and changes
- *justice, responsibility, and ethics,* understood as the ethics and sustainability of the personal and professional behavior and the ability to describe, negotiate and reconciliate principles, values, aims, and goals for sustainability
- *critical thinking and analysis*, conceived as the ability to challenge norms, practices, and opinions and reflect on one’s own values, perceptions, and actions
- *interpersonal relations and collaboration*, comprising for example communicative skills, the ability to deal with conflicts the willingness to learn from other perspectives
- *empathy and change of perspective*
- *communication* (in intercultural contexts) *and* the appropriate use of *media*/information and communication technologies
- *strategic action*, mainly understood as the ability to design, analyze and implement sustainability activities and projects

- *personal involvement*, including participation in creating sustainability initiatives, the willingness and ability to learn autonomously, innovate and take action, as well as self-motivation
- *assessment and evaluation*, meaning the ability to develop assessment and evaluation standards and guidelines and to evaluate with respect to conflicts of interest and goals, uncertain knowledge, and contradictions, and finally
- *tolerance for ambiguity and uncertainty*, describing the competency to cope with conflicts, competing goals and interests, contradictions, and setbacks.

UNESCO's (2017) list of "cross-cutting key competencies" for SD represents another influential competency framework. It suggests systems thinking, anticipatory thinking, normative competency, strategic competency, collaboration, critical thinking, self-awareness, and integrated problem-solving (understood as the integration of the aforementioned competencies) as those competencies "necessary for all learners of all ages worldwide" (p. 10) and relevant for all SDGs, including SC. This list strongly overlaps with the previous competencies, yet adds the ability "to deal with one's feelings and desires" (ibid.) as part of self-awareness competency. In addition to those previously mentioned, according to leading scholars in the field, these competencies describe desirable learning outcomes for designing ESD programs that have also been explicitly addressed within ESC (e.g. Sahakian & Seyfang, 2018). Stimulating them follows the overall logic to enable learners to address challenges they will encounter in their personal lives and professional careers (Lambrechts et al., 2013).

Given the complex interplay of cognitive, emotional and motivational dimensions of consumption (Fischer & Barth, 2014a), related competencies are supposed to equip learners with the abilities, proficiencies or skills that are necessary or sufficient to deal with cognitive, emotional and motivational challenges related to SC. In order to evaluate the suitability of the aforementioned competencies for this purpose, it is worth taking a closer look at these challenges.

3.2.2. Challenges of sustainable consumption



The following article is explicitly dedicated to this topic:

Frank, P. (2017). Warum wir Tiere essen (obwohl wir sie mögen). Sozialpsycho-logische Erklärungsansätze für das Fleischparadox. *Psychosozial*, 40(148), 49–69. See section 9.1.

As suggested above, SC can be considered as consumption that intentionally contributes to create or sustain external conditions allowing all human beings today and in the future to meet their objective needs. An essential part of the intent to consume sustainably hence lies in the reconciliation of one's own (perceived) needs and those of others in the light of the impacts of one's consumer actions. The aim of the following sub-section is to identify those challenges individuals might face when aiming to undertake this reconciliation.

Individual consumer behavior constitutes a highly complex process that englobes a number of determinants, such as attitudes, personal norms, and values (e.g. Klöckner, 2013). While the elucidation of these determinants is of great value for the theoretical explanation of behavior, it is not sufficient for understanding the process of behavioral change, as envisaged if an individual intends to consume more sustainably. To this end, procedural or stage models have been developed that conceptualize behavioral change as a "transition through a sequence of qualitatively different change stages" (Bamberg & Schulte, 2019, p. 308). Building on and extending the work of Schwartz' and Howard's (1981) normative decision-making model of altruism, Klöckner and Matthies (2004) conceive of normative decisions as being reached in a four-stage process, namely (1) the attention stage, (2) the motivational stage, (3) the evaluation stage and finally (4) the behavioral stage. I will make use of this model in order to structure the identification of SC-related challenges and allocate them to the specific stages of normative decision-making (see figure 5, p. 31)[4].

The attention stage

The attention stage covers the necessary preconditions to initiate SC, namely (a) the awareness of the need to consume sustainably, (b) the awareness of the relevance of one's individual behavior with regard to that need and (c) one's perceived behavioral control, that is to say an individual's perceived ease or difficulty of performing the particular behavior (Ajzen, 1991). Obviously, knowledge plays a crucial part at this stage both for forming the intention to change one's consumer behavior and for making sure that the actual impact of one's action corresponds to this intention. Without knowledge of the impact of one's own consumption and more sustainable alternatives, one cannot intentionally change these behaviors toward the more sustainable options. Impacts of individual consumption, however, are often not directly observable for consumers due to the lack of timely, spatially and/or social closeness (for example the causal relation between airplane traveling and global warming) (Trope & Liberman, 2010; Ekardt, 2017). In addition, assessing the actual impact of specific behaviors can be complex and related information ambivalent. For example, while a reduction of animal-based foods consumption is increasingly considered fundamental to a sustainable food system (Mylan, 2018), there are different opinions concerning the amount of animal produce for diets to remain ecologically acceptable. While some scholars argue that a complete abandonment of these foods is recommended for meeting climate change targets (e.g. Hedenus et al., 2014), others do not find a difference between vegan and vegetarian diets (e.g. Rosi et al., 2017) and even find that "some vegetarians and vegans have higher environmental impacts [through their diets] than those of some

4 Klöckner and Matthies' (2004) normative decision-making model is surely not the only procedural model that can be used to describe individual consumer behavior. Examples for other procedural models are the transtheoretical model (Prochaska & Velicer, 1997) or the self-regulation model of voluntary behavioral change (Bamberg & Schulte, 2019). For the purpose of this section, the normative decision-making model carries some advantages that make it more appropriate here: Most importantly, Klöckner and Matthies (2004) look at those phases that are relevant for describing singular decisions. Therefore, it makes it possible to describe and conceive challenges of SC as reoccurring each time when trying to act in a sustainable way. The transtheoretical or the self-regulation model, in contrast, look at the long-term process of permanent behavioral change, taking into account precontemplative and contemplative phases that precede actual behaviors. Since the focus of this section is to identify challenges that occur in concrete consumptive acts, Klöckner and Matthies' normative decision-making model seems more appropriate, as it facilitates a detailed depiction of these challenges according to the various phases related to singular consumptive acts. In particular, the model takes into account psychological mechanisms as a relevant coping strategy when faced with SC-related challenges. As will be outlined below, these coping strategies bridge challenges of sustainable consumption and SC-related learning and are of high importance in understanding the maintenance of (unsustainable) consumption patterns.

omnivores” (ibid., p. 1). Following up on this, it has also been argued that animal products are not per se ecologically problematic, but only those obtained from factory farming, which is considered being one of the major drivers for climate change due to high CO_2 emissions (Stoll-Kleemann, 2014). Grass-fed farming, in contrast, is sometimes deemed highly beneficial and even necessary for reducing carbon emissions and conserving ecosystems (Keith, 2009; Idel, 2019). In short, even if the environmental need for reducing meat consumption seems to be widely accepted, it remains controversial which diet one is supposed to follow for maintaining one’s environmental impact at a minimum. Presuming that a certain behavior can be identified as sustainable, individuals need information and skills that allow them to act accordingly. To stay with the topic of reducing meat, one needs to know where to purchase meat replacements, how to compose one’s diet in order to avoid nutrient deficiencies, and how to prepare vegan or vegetarian dishes (e.g. Frank, 2017).

Nevertheless, knowledge and practical skills do not seem to be sufficient for consuming sustainably. This becomes particularly salient when looking at the intention-behavior gap, which is when people do not act in accordance with their intentions (Kollmuss & Agyeman, 2002; Sheeran, 2002). This gap is widespread in Western industrialized societies: A representative survey demonstrated, for example, that most Germans consider environmental protection important and express their willingness to restrict their individual consumer behavior for this purpose (BMU, 2015). Yet, despite their knowledge of the negative consequences of their consumer behavior, just few people act accordingly (Kleinhückelkotten et al., 2016). More generally, it has already been outlined in section 2 that growing environmental knowledge and awareness over the last 15 years did not lead to increased pro-environmental behavior. These findings suggest that other factors come into play when it comes to sustainable consumption. As I will demonstrate in the remainder of this sub-section, these factors mainly concern the personal, especially affective-motivational dimension of the individual.

The first factor still concerns the attention stage, more precisely the perceived behavioral control. Regardless of practical skills a person might possess, they can still hold beliefs that hinder them from taking action (Ajzen, 2001). They might, for example, doubt their ability to abandon meat. In fact, the importance of the belief in one’s ability to succeed in a specific situation or task and to realize one’s intentions for acting sustainably – commonly referred to as self-efficacy – has been widely discussed in the literature: Limiting beliefs about one’s abilities to reach one’s goals have been found to keep individuals from engaging in sustainability-related action (Landry et al., 2018); high self-efficacy, in contrast, seems to encourage individuals to take action (e.g. Jugert et al., 2016; Geiger et al., 2017). Connected to individuals’ self-efficacy is their general emotional attitude toward sustainability-related problems: On the one hand, scholars have provided evidence that feelings of despair and helplessness generally reduce individuals’ willingness to engage with these problems (Ellis, 2004; Stevenson & Peterson, 2016), often entail fatalistic opinions (for instance: “It feels pointless for me to take climate action if no one else does”, Brink & Wamsler, 2019, p. 1344) and can lead to fatalistic behavior, motivated by the idea that taking or not taking action has the same result (Thompson et al., 1990). On the other hand, “constructive hope” (Ojala, 2012, p. 625), that is to say hope that is not based on denial, has been shown to be positively correlated with sustainable behavior (see also Stevenson & Peterson, 2016; Grund & Brock, 2019).

The motivational stage

Moving to the motivational stage of the normative decision-making model, further affective-motivational challenges for SC become visible. At the motivational stage, different motivational systems are triggered. Schwartz and Howard (1981) distinguish three different types of motivations, namely (i) one's internal value system, (ii) the motive of behaving in accordance with the expectations of relevant others (social norms) and (iii) other non-moral (e.g. economic) motives. Within a paradigm of informed and reflexive consumer behavior that underlies ESC as constructed in this thesis (McGregor, 2005), sustainability-related actions should be motivated by one's internal value system. From this perspective, there are at least three challenges that can be distinguished: (1) individuals are not aware of their values, (2) sustainability-oriented social norms impede the unfolding of one's internal values, and (3) non-moral motives (including the motive to behave in accordance with others) conflict with one's internal values.

In order to explain the first challenge, it is necessary to specify the understanding of values that underlies the following argumentation. Values can be defined as personal beliefs about what is important in life (e.g. Plumb et al., 2009). They are relatively stable dispositions, structuring and guiding other beliefs, norms and attitudes that in turn can affect behavior (Rokeach, 1973; Feather, 1995). However, psychological research has pointed out that people are not necessarily aware of their values, hence lacking a clear sense of what is personally important for them in life (e.g. Ciarrochi et al., 2011; Berghoff et al., 2018). As a result, "individuals may struggle to (a) identify valued life domains (i.e., broad areas of life such as family, intimate relationships, and education), (b) express valued intentions (i.e., specific behavioral patterns that an individual wishes to engage in), or (c) consistently perform value-directed actions" (Berghoff et al., 2018, p. 2). These struggles are particularly problematic for SC, as the possible timely and spatial distance of the consequences of unsustainable behavior mentioned before makes it more difficult for individuals to realize that their actions are not in line with their intrinsic values. Against this backdrop, some scholars explicitly consider ESC as a means for (sustainability-related) value clarification (e.g. McGregor, 2005).

Another potential solution to this problem might be to externally 'impose' sustainable behaviors on individuals. In fact, sustainability has turned into a strong normative vision over the last years (Herbrik & Kanter, 2016). In light of an increasing visibility of and discourse on sustainability-related problems, openly confessing one's consumptive 'sins' becomes less socially acceptable (Herbrik & Kanter, 2016; Ekardt, 2017). Especially in social milieus in which sustainability plays a pivotal role, allegedly unsustainable consumer behaviors, such as eating meat, have already become morally reprehensible (Šedová & Slovák, 2016). The recent upcoming of the term "flying shame" (Spiegel Online, 2019; Higham & Font, 2020) suggests that similar trends enter the social mainstream, turning the vision of sustainability into a social norm. While this form of social control might carry a potential for avoiding unsustainable behavioral patterns (Ekardt, 2017), it can also lead to the second challenge mentioned above: More precisely, it can prompt psychological reactances, describing a motivational arousal to offers, persons, rules, or regulations that threaten or eliminate specific behavioral freedoms (Brehm, 1966). Furthermore, Maiteny (2002) has argued that if "behavior changes in reaction to regulations, incentives and/or anxiety alone, it is more likely to be 'skin deep', temporary and prone to revert back to old habits" (Maiteny, 2002, p. 299). This suggests that for a behavior change to endure

in the long term, a person has to root it in their intrinsic values. External attempts to guide sustainable consumption alone risk to impede the connection to these values and might have the opposite effect of what they intend.

The third challenge, finally, occurs when normative values, such as striving for sustainability, conflict with other motives. An important conflicting motive is one's interest in social adherence, which can require to engage in unsustainable consumer behavior when sustainable actions are socially sanctioned (for example refusing to fly in professional contexts or not eating meat at a barbecue). Hedonism, convenience, or material wealth are other examples of personal interests, whose pursuit can be restricted if one follows one's intrinsic values (Steg et al., 2014). This conflict plays a crucial role for understanding challenges of SC emerging at the evaluation stage.

The evaluation stage

Schwartz and Howard (1981) describe the evaluation stage as the stage where the costs of possible actions are anticipated and weighed, taking into account the previously activated motivations. The higher the perceived costs of a behavioral change, so is argued, the more challenging it is for an individual to perform it (see also Diekmann & Preisendörfer's [1992] low-cost hypothesis). There is now a large body of research addressing 'costs' of more sustainable consumer behavior in various areas of consumption (e.g. Mylan, 2018 and Markowski & Roxburgh, 2019 on veganism; Morgan & Birtwistle, 2009 on fashion consumers; Stern, 1999 and Steg, 2003 on private vs. public transport; Krystallis & Chryssohoidis, 2005 on organic food purchase; Ruppel, 2015 on flying). Although specific costs vary in between different consumption areas and kinds of consumer goods, they all have in common that they emerge out of conflicting motives. As outlined in the previous section, consumption occurs as a result of a subjectively perceived need. Consumer goods and services were described as satisfiers for these perceived needs. Changing consumption patterns might thus endanger the realization of these needs, thereby reducing the subjectively experienced quality of life. For example, the purchase of local and organic food might require visiting the local food market, which is further away than the nearest conventional supermarket. Additional time resources and physical effort is needed in this case, hence increasing the costs of a behavioral change. Similarly, using public transport or abstaining from airplane traveling may result in a need of higher time resources, less convenience, and higher financial expenses. The latter is also true when purchasing organic food instead of conventional products. Changes with regard to individual consumption can become particularly challenging when they entail negative social consequences. This occurs when prevalent social norms or interests of others are opposed to sustainability-oriented values, for example refusing to eat meat or to use airplanes (Ruppel, 2015; Markowski & Roxburgh, 2019). In these situations, an individual's need for belonging – in social psychology considered a "fundamental human motivation" (Baumeister & Leary, 1995) and a "core personality trait" (DeWall et al., 2011) – is threatened.

Emotions play a particularly important role when evaluating consumer activities (see also Soscia, 2013; Hamann et al., 2016). If a consumer activity is accompanied by positive emotions such as pleasure or joy, anticipating this emotion can be a relevant driver for this activity. Eating meat or exotic fruits, spending one's holiday in luxury resorts, or taking a hot bath are examples for such activities. Abandoning these behaviors possibly deprives consumers from these positive sensations,

which is why changes toward SC can often be experienced as emotionally challenging (Frank & Stanszus, 2019). If, in contrast, a consumer activity is connected to negative emotions, this might prevent individuals from engaging in that activity (Gifford, 2011). A vegetarian diet might, for instance, be associated with nutritional deficiencies and can therefore prompt health-related worries. Likewise, using public transport might be avoided due to fear of harassment. More generally, climate change might even be a reminder of one's mortality, thereby evoking existential fear of death (Vess & Arndt, 2008). Again, socially shared consumer activities carry a particular potential for prompting such emotional reactions: Either might consumer activities take place in social surroundings associated with particular positive feelings (e.g. sharing the family Christmas dinner) and one might feel deprived of this positive feeling when consuming differently; or one might experience or at least expect negative social reactions, such as disappointment, being asked for justifications, or even rejection. In addition, changes in consumption patterns can pose a threat towards one's social identity, that is the portion of an individual's self-concept derived from perceived membership in a relevant social group (Tajfel & Turner, 1986). For instance, Ruby and Heine (2011) and Rothgerber (2012) have shown how social images of masculinity and men's intention to adhere to these images makes them prone to meat consumption and turn plant-based foods into less attractive options.

At the same time, conflicts of identity related to one's consumer behavior do not necessarily need to originate from opposing social norms. Instead, they can arise from the observation that one's actions do not correspond with one's sustainability-oriented values. This is because bringing the detrimental consequences of one's behavior into full consciousness can prompt feelings of guilt (Wang & Wu, 2016) and reduced self-esteem (Frank & Stanszus, 2019). More generally, being confronted with the pressing problems of contemporary society and feeling a sense of individual responsibility for these problems can trigger emotions of overwhelm, helplessness, and other stressful experiences (see also Brundiers & Wiek, 2017). Thus in summary, changing and even reflecting one's consumptive actions is likely to be accompanied by (high) emotional costs.

The behavioral stage

Such emotional burdens co-determine the action the person carries out at the behavioral stage. If the individual cannot deal with the emotional burdens described above, it has been argued that he or she will engage in psychological coping mechanisms aiming to dissolve the emotional discomfort by repressing, neutralizing, or rationalizing the impact of their actions (e.g. Chatzidakis et al., 2007; Gregory-Smith et al., 2013; Mandel et al., 2016), thereby justifying and stabilizing unsustainable actions (e.g. Tenbrunsel & Messick, 2004). These coping mechanisms can also entail a process of desensitization, meaning that individuals experience a feeling of indifference with respect to their consumption. People are not necessarily aware of these processes and the role they play regarding their consumer choices, as they are often triggered at an unconscious level as a response to the emotional discomfort (Sommer, 2007; Hamann et al., 2016). This makes it particularly challenging for individuals to replace psychological with problem-oriented coping strategies, such as changing one's consumer patterns.

Klöckner and Matthies (2004) have suggested to integrate habitual behavior in the normative decision-making model. They argue that many consumer activities do not originate in choices based on a

thorough reflection and evaluation of one’s actual needs and values, but rather demonstrate habitualized behaviors triggered by situational cues. While the degree of reflection depends on the area of consumption (Zundel & Kaufmann-Hayoz, 2011), ample evidence has been provided that certain forms of consumption, for example eating, can be considered strongly habitual and automatic (e.g. van't Riet et al., 2011). Moreover, evidence shows that eating is often a reaction to impulses or serves as an emotional coping strategy for avoiding or suppressing negative thoughts and emotions, instead of being primarily based on physical needs or values (Mantzios & Wilson, 2015). This further restricts the control people have over their food purchases and consumption (Bahl et al., 2013). As is the case for the psychological coping mechanisms, people are not necessarily aware of the causes behind their habitual consumer patterns, their underlying impulses, or the external triggers that activate them. Therefore, changing these routines can be particularly challenging.

So far, challenges of SC have been primarily described as arising from the discrepancy between sustainability-oriented values and actual behavior. The phenomenon of habitual consumption, however, points to a more fundamental challenge of SC that underlies the entire process of normative decision-making. Consumption is defined as an act that serves to satisfy one’s needs. As was explained, consumer goods constitute potential satisfiers for individual needs and their use is supposed to make a contribution to achieve a good life. Yet habitual consumer patterns exemplify that individual consumption is not necessarily rooted in one’s actual needs. Max-Neef’s (1992) classification of satisfiers provides an explanation for this disparity: He distinguishes between singular, synergistic, pseudo-, and inhibiting satisfiers. While singular and synergistic satisfiers do address one or multiple needs, pseudo-satisfiers only simulate and inhibiting satisfiers even obstruct the satisfaction of one’s own needs.

These reflections entail two consequences: Firstly, the selection of a (consumptive) satisfier might not be appropriate to satisfy individual needs and can hence fail in its original function to contribute to an individual’s good life; secondly, much of the detrimental consequences of individual consumer behavior might be a result of inappropriate selections of (consumptive) satisfiers. In order for a consumer act to be sustainable it must address one’s personal needs while external conditions are preserved that allow other human beings today and in the future to meet their objective needs. An awareness both for one’s needs and the adequacy of satisfiers to meet the latter is a prerequisite for engaging in such actions. In particular, an individual might benefit from being able to identify synergistic satisfiers in the pursuit of sustainability-oriented values without (significantly) compromising other goals.

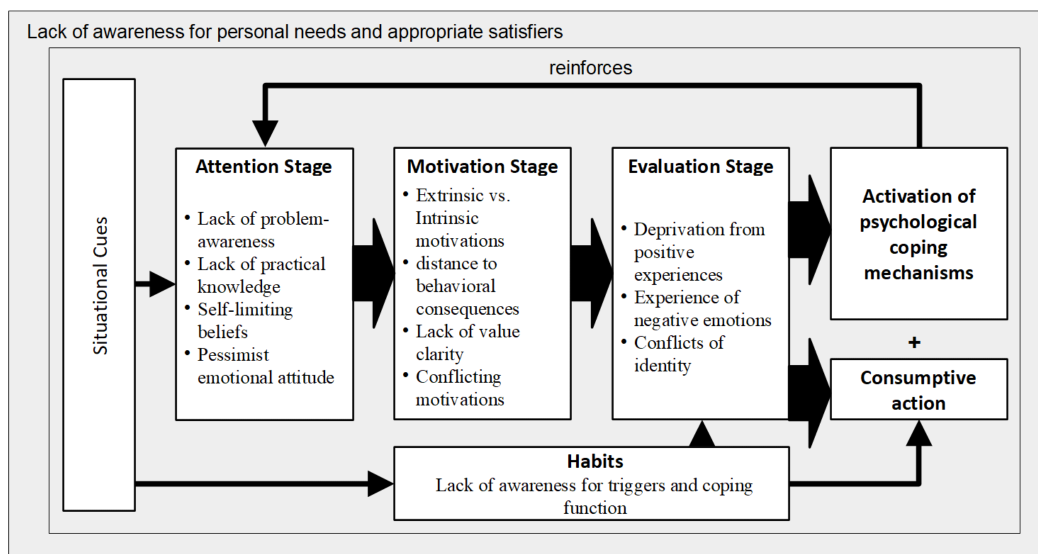
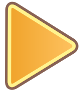


Figure 5: Challenges of SC based on Klöckner & Matthies (2004) normative decision-making model.

Figure 5 summarizes the described challenges of SC at each stage of the decision-making process. It must be kept in mind that these challenges are usually not a matter of a single consumptive act, but occur repeatedly when intending to consume sustainably. As a consequence, the described challenges constitute potentially recurring obstacles both for the initiation and maintenance of SC patterns and require perpetuous efforts to be faced and overcome (Frank, 2017; Frank & Stanszus, 2019). An ESC aiming to enable learners to consume in such a way that their behavioral impacts correspond to their sustainability-related intentions needs to build competencies that enable them to respond to these challenges. According to what was said before, these competencies include an awareness for habits, inner states and processes (emotions, motivations, values, needs and their satisfaction), and psychological coping mechanisms that are usually unintentionally activated. An open and empathic posture toward their consumer patterns is also helpful in order to overcome the (emotional) distance to the behavioral consequences. Furthermore, individuals can benefit from an emotional resilience, understood as the ability to endure burdening emotional states (Fröhlich-Gildhoff & Rönnau-Böse, 2015) and the perseverance to pursue intrinsic values in light of reoccurring obstacles. A feeling of self-efficacy and a general positive attitude toward the future can support this.

I began this sub-section with the observation that knowledge about the impacts of one’s consumer behavior and possible alternatives is also prerequisite for SC. This is where SC-related learning comes into play.

3.2.3. Challenges of SC-related learning



The following article is explicitly dedicated to this topic:

Frank, P. (2018). Knowledge Generation and Sustainable Development. In W. Leal Filho (Ed.), *Encyclopedia of Sustainability in Higher Education*. Cham, Germany: Springer. See section 9.3.

Identifying challenges of ESC-related learning requires some specifications on the concept of 'learning' more generally that underlies the following deliberation. Both definitions and theories of learning are subject to controversial debates and depend on the discipline from which learning is conceived (e.g. Faulstich, 2013). An influential definition has been provided by Hilgard and Bower (1983), who speak of learning as a process in which a change of one's behavior or in one's behavioral potential occur due to a (repeated) experience of a given situation. Learning in this sense concerns all human potentials and comprises both intentional and unintentional processes. The term as such does not imply any qualitative or normative evaluation of the behavioral change or the behavioral potential: Learning to be afraid of taking the bus describes a learning process as good as, for example, learning to solve complex mathematical problems.

Education attributes intentionality, normativity, and directedness to learning processes. An important form of education is formal education, describing learning processes that occur in a structured environment such as schools or universities and that are accompanied by teachers (e.g. Dib, 1988). Formal education is guided by certain aims and functions of the educational system. Over the last centuries, scholars, practitioners, and politicians alike have provided heterogeneous perspectives on these goals and functions (Klafki, 2007; Siegel et al., 2018), ranging from the civilizing of students, to the production of knowledge and knowledgeable students that can serve economic interests, to the fostering of autonomy and rationality (Brighouse, 2005; Siegel et al., 2018)[5]. In this regard, the broader educational discourse reflects both the instrumental and emancipatory endeavors that have been described in relation to ESD. What is important here is that regardless of the specific goals guiding educational practice, the obtainment of these aims foresees the confrontation of learners with certain contents that they need to assimilate and/or reflect (Klafki, 2007; Kron, 2008; Siegel et al., 2018): In the instrumental understanding, it is through the transmission of these contents that learners produce their own knowledge and hence become knowledgeable; in the emancipatory understanding, it is through the (critical) reflection of these contents that learners obtain the ability to make justified statements on the world – that is to say statements rooted in reason and inquiry – supporting the cultivation of autonomy and maturity.

5 The latter idea has been particularly prominent in the German concept "Bildung". Education in the sense of Bildung has been conceived as learning processes whose final end is the obtainment of autonomy and maturity (Reichenbach, 2011; Fischer, 2014; Gudjons & Traub, 2016). As part of this end, educational learning processes are supposed to enable individuals to actively shape and take responsibility for their personal, political, and societal lives. The individual's ability to make justified statements on the world – that is to say statements rooted in reason and inquiry – has been widely considered as a prerequisite for these ends (Klafki, 2007; Kron, 2008). The understanding of education has also strongly influenced the emancipatory interpretation of ESD (see for example Schnack, 2000; de Haan et al., 2008).

Unsurprisingly, the confrontation with contents also plays an essential role within ESC (Frank, 2018). Regardless of its interpretation as instrumental or emancipatory education, it requires (at least to a certain extent) a confrontation with SC-related content. The manner of confrontation might vary from one area of consumption to another: Where sustainable alternatives to prevailing consumption standards are already identified, learners need to assimilate the provided information and translate it into action in order to pursue sustainable consumption patterns; when dealing with uncertain cases, learners are supposed to take note of and evaluate ambiguous information, so that they can fulfill their role in (co-)developing and experimenting with solutions for unsustainable consumption and in engage in public deliberation and political decision-making processes. Either way, the acquisition of SC-related content knowledge – understood as “the body of knowledge and information that teachers teach and that students are expected to learn” (The Glossary of Education Reform, 2016, pg. 1) in relation to SC, is an indispensable part of ESC.

A variety of learning theories have been dedicated to the question as to how individuals process new information and generate knowledge (Seel, 2003). Especially cognitive-constructivist perspectives have emphasized that individuals do not simply receive information, but actively construct mental models (Derry, 1996) and knowledge representations (Strube & Wender, 1993) based on a subjective perception and interpretation of experience. In other words, these perspectives suggest that the knowledge learners construct as a result of a confrontation with a given content might be very different from what educators intend to convey or consider important about this content, potentially impeding the alignment of actual learning outcomes with the content addressed within learning activities.

Cognitive-constructivist learning theories argue that the way individuals process new information (learning content, for instance) depends on a content-independent set of cognitive, affective, and motivational conditions and predispositions (Seel, 2003). Certain dispositions are a priori mandatory for the learners’ capability of processing information: Prior to processing information, for example, the individual must possess the sensory faculties required for this process. Other factors influence the perception or interpretation of the information: For example, Deci and Ryan (1985) have shown how intrinsic learning motivations, such as curiosity and interest in a subject, can facilitate learning, while for example fear of negative consequences risks to diminish intrinsic learning motivations and can impede learning processes. The perceived self-determination and self-efficacy have been suggested as important determinants for learning motivations and learning-related emotions, too (Kuhl, 1983; Schwarzer, 1993). Many general influencing factors, such as those just described, are well-known in the scholarly debate (Seel, 2003) and have been widely considered in educational practice (Ecclestone & Hayes, 2009). They are not exclusively or especially relevant for ESC contexts, but apply to learning processes more generally.

Some factors, however, do have a special relevance for ESC contexts, and they pose serious challenges for dealing with SC-related content. These challenges both concern instrumental and emancipatory educational approaches. It is the identification of (some of) these challenges that stands in the spotlight of the remainder of this sub-section.

Challenges for instrumental learning

Regarding the first case, learning-related challenges are a direct result of the difficulties described in the previous sub-section. As I have illustrated, being confronted with the sustainability-related problems, such as inequality, poverty, climate change, or species extinction, while at the same time feeling a sense of individual responsibility for these problems can be overwhelming or at least emotionally stressful. This state has been described as cognitive dissonance (Festinger, 1957; Aronson, 1969). If the individual cannot support or dissolve this dissonance through behavioral change, it is likely that he or she will engage in psychological coping mechanisms aiming to dissolve the unpleasant emotional state, such as repressing, neutralizing, or rationalizing (the impact of) one's actions and thereby altering one's attitudes and beliefs.

Especially the latter strategy negatively impacts further confrontations with those contents that prompted the dissonance. Rationalization is a process of finding post-hoc justifications for one's own behavior, for example as a result of criticism or when one's behavior is perceived as discrepant with an integral aspect of one's character (Tsang, 2002; Mercier, 2011). Rationalization processes help soothing negative emotions when a person is unable to change or motivated to continue in a practice or belief that they may otherwise feel guilty about on account of dissenting perspectives (Chatzidakis et al., 2007; Gregory-Smith et al., 2013; Frank, 2017). It also plays an important role in maintaining an image of oneself as a good, moral person (Bandura, 1999; Jordan & Monin, 2008). Rationalizations are hence reasoning processes driven by the motivation to reduce or avoid an experienced emotional discomfort (Kunda, 1990). Applying the terminology of the philosopher Joseph Raz (2011), people engaging in motivated reasoning processes lack *epistemic reasons* for believing in the justifications they provide for their consumer behaviors. Instead, their motivation to reduce the experienced negative emotions establishes a *practical reason* to believe in their own accounts[6].

Engaging in motivated reasoning processes therefore risks to activate cognitive biases, defined as the phenomenon that "individuals draw inferences or adopt beliefs where the evidence for doing so in a logically sound manner is either insufficient or absent" (Haselton et al., 2005, p. 725). For example, people will often seek out arguments supporting their own point of view (confirmation bias, Nickerson, 1998) while overlooking or dismissing arguments that challenge it (Ditto & Lopez, 1992). The affective-motivational state precedes the examination of new information and hence determines their interpretation, regardless of their epistemic quality. As mentioned before, such processes usually take place at an unconscious level.

Scholars have repeatedly suggested "possible ways to (re-)activate rational thinking and avoid affect heuristics in questions that require careful and rational efforts rather than fast and myopic answers" (Engler et al., 2019, p. 611). Part of these ways is to increase discursive-intellectual efforts and

6 According to Raz, reasons are facts that explain something. Thus epistemic reasons are facts that speak in favor or against believing a given proposition. For example, an intoxication after having drunk some schnapps is a reason to believe that the schnapps contained alcohol. Practical reasons, in contrast, are facts that speak in favor of (or against) a specific action. In the case under discussion, the formation of belief becomes an action itself and the motivation to soothe the negative emotions turns into a practical reason to perform that action.

thoroughly evaluate and compare the various perspectives available regarding a specific content. This is usually what happens in case of ambiguous and uncertain SC-related topics.

Challenges for emancipatory learning

There is, however, good reason to assume that ambiguous and uncertain SC topics can equally be approached by motivated reasoning instead of being guided by an epistemic evaluation of the provided arguments. Early evidence endorsing this statement was provided by Okabe (1912). Studying the psychological foundations of beliefs, Okabe found that the more a person is convinced about the correctness of their standpoint, the better he or she feels. In contrast, uncertainty seems to be perceived as unpleasant (see also Lund, 1925). In other words, humans tend to show an emotional preference for certainties. Therefore, they show a proclivity toward developing convictions regardless of their epistemic justification, which can also be observed in regard to SC-related topics (Frank et al., 2019a). Complex and interdependent problems impede our psychological need for control and orientation (Grawe, 2007). In order to deal with complex and uncertain knowledge, it can be helpful to show a motivation “to engage in and enjoy effortful cognitive endeavors” (Cacioppo, 1996, p. 197). Conversely, the confrontation with arguments cannot simply be understood as an epistemic examination of the facts provided. Instead, whether or not one faces existing evidence depends on one's willingness to undertake such examination. This willingness is directly dependent on the subjective theories (Groeben et al., 1988) people hold about what knowledge is, meaning that epistemic assumptions determine the way new information is processed (Perry, 1998; Hofer & Pintrich, 2002). This also concerns sustainability-related information: Muis et al. (2015) found that students who believed that the justification of knowledge about climate change was complex and uncertain, experienced higher levels of enjoyment and curiosity, and lower levels of confusion, anxiety, and boredom than those expecting more unambiguous information.

Building epistemic beliefs allowing to engage in and enjoy effort cognitive endeavors, in turn, seems to be dependent on the individual’s capacity to cope with complexity and uncertainty. The scholarly literature provides a series of strategies individuals apply to circumvent the latter task. Kelley's (1971) discounting principle is one of them, according to which the confidence in a given explanation develops proportionally to the number of alternatives available, regardless of their epistemic quality. When people can see more than one reason for something happening, they discount, or minimize, the importance of each reason, as they are unsure what the actual cause is. Adding to this, Kruglanski and Webster (1996) introduced the concept of *need-for-closure (*Kruglansky & Webster, 1996). The term ‘closure’ is used in the sense of arriving at a settled belief. Closure is “the juncture at which a belief crystallizes and turns from hesitant conjecture to a subjectively firm ‘fact'” (ibid., p. 266). Achieving closure or judgmental commitment on a question puts an end to the experience of ambiguity and delivers the sense of having a firm answer. As argued before, individuals can have a practical interest in achieving closure in certain situations. This is, for example, the case when they are motivated to continue with a specific behavior or uphold a belief. For many consumer activities, we do have such an interest (Ekardt, 2017; Engler et al., 2019). Sometimes consumer activities are also directly linked to constructs of identity (e.g. veganism: Carmichael, 2002; clothing: Niinimäki, 2010), and we have a strong interest in maintaining a positive and consistent image of ourselves (Aronson, 1969; Jordan & Monin, 2008). This interest can lead to a different intensity of confidence toward the provided

evidence on the question at stake, a phenomenon that Kruglansky and Webster call the unfounded confidence paradox. Similar to this paradox is the already mentioned confirmation bias – describing the phenomenon that agents have a tendency to search for, interpret, favor, and recall evidence that supports the beliefs they hold rather than impartially dealing with new information (Nickerson, 1998) – or the myside bias, which is when people overestimate the amount of evidence that favors their position (e.g. Stanovich et al., 2012). Opposing evidence, in contrast, can activate defense motivations (Masterson & Crawford, 1982), which in turn reduce individuals' receptivity toward such evidence and further stabilize their positions. Such reactions are by no means exclusive to allegedly unsustainable consumer patterns (Kallio et al., 2007; Frank & Fischer, 2018): Veganism, for instance, carries a great potential to convey identity, and people pursuing a vegetarian or vegan diet seem no less likely to engage in biased perception of counter-evidence to their own standpoint than meat eaters do (Frank & Fischer, 2018; Frank et al., 2019a).

The social intuitionist model of moral judgment (Haidt, 2001) provides good theoretical ground to argue that these proclivities are not simply a result of insufficient rational endeavor. The belief that humans are rational agents has for long been the fundamental principle regarding theories about higher cognition (Haidt, 2001). Social intuitionism is an alternative to rationalist models of moral judgment. It is built on the premise that the affective system was undervalued by previous research. According to social intuitionism, moral emotions and intuitions (usually unconsciously) drive moral reasoning and directly cause moral judgments, as opposed to rationalist models, where reasoning is understood as the conscious, step-by-step process of judgment (ibid.). Moral positions and judgments are hence primarily intuitive ("intuitions come first"). In an effortful process of searching for supporting arguments and causal explanations, these positions and judgments are then rationalized, justified, or otherwise explained after the fact. Haidt further claims that moral reasoning needs to be viewed as an interpersonal process that reflects social motives, for example belonging or recognition: "Moral reasoning is usually an ex post facto process used to influence the intuitions (and hence judgments) of other people" (ibid., p. 814). He suggests that when people explain their moral positions, they often miss, if not hide, the core premises and processes that actually led to those conclusions (Haidt, 2013). While the social intuitionist model does not rule out the possibility that discussing moral judgments and positions can lead to changes of the latter, it equally emphasizes the risk of cementing one's own and dismissing others' perspective. This process has been called attitude polarization (Lord et al., 1979) and observed when students discuss opposing evidence, for example, concerning meat consumption (Frank & Fischer, 2018).

In sum, dealing with SC-related content can come along with a series of challenges both in instrumental and emancipatory learning settings. These challenges are mainly the result of motivated reasoning processes: Firstly, being confronted with the (unsustainable) impacts of our consumer choices can trigger negative emotional responses. Avoiding or resolving the emotional discomfort might require to engage in avoidance strategies, psychological reactance, or rationalization processes. Secondly, dealing with complex and interdependent problems impede one's psychological need for control and orientation, potentially leading learners to hastily accept positions and develop convictions regardless of their corroboration. Thirdly, maintaining one's identity and the pursuit of social motives can influence the confrontation with SC-related content and lead to a biased perception of the latter.

Importantly, intending to address these biases with more content does not seem to be conducive (Tenbrunsel & Messick, 2004) and even risks to fuel these biases (Haidt, 2001), as it might trigger the same affective-motivational responses that have been initially activated as a coping strategy to deal with the content. Instead, building (1) an awareness for the inner (affective-motivational) states and processes underlying the confrontation with SC-related content, (2) the emotional resilience to support the emotional discomfort triggered by this content, and (3) openness and empathy toward the affective-motivational processes leading to different perspectives could be a way to enable individuals to deal with the content in a more constructive manner.

3.2.4. Personal competencies for sustainable consumption

Reviewing what was said in the previous sections, the pursuit of SC and SC-related learning can be construed as interdependent processes that come along with overarching challenges. On the one hand, knowledge about the impacts of one’s consumer behavior and more sustainable alternatives is necessary for intentionally pursuing SC. The ability to deal with new information and adapt one’s behavior accordingly is hence a prerequisite to keep one’s consumptive actions in line with the principles of sustainability; on the other hand, learning about these impacts confronts individuals with their actual consumption patterns, which in turn might reveal an inability or unwillingness to adapt the one’s consumption the one’s sustainability-oriented values. I have proposed this confrontation as a major challenge of SC, as it is likely to cause a state of emotional discomfort for an individual. This emotional discomfort can have several roots, such as the complexity of and hence uncertainty about the solution of the problem at stake, the fact that one does not act in accordance with one’s values, or the mere realization of the negative consequences of one’s actions. If – for several possible reasons, such as negative self-beliefs, a pessimist attitude toward the future, a lack of practical skills, or conflicting motives – a person is not able to change their behavior, they are prone to engage in psychological coping mechanisms. These coping mechanisms can stabilize the current behavioral patterns, especially because they are accompanied by a biased perception of (new) information and motivated reasoning processes, which also impede further learning activities. Many of the described processes take place at an unconscious level, which makes it more challenging to directly address them. Overall, at an individual level, challenges of sustainable consumption seem to be predominantly affective-motivational (see also Maiteny, 2005). An ESC aiming to enable learners to consume in such a way that their behavioral impacts correspond to their sustainability-related intentions needs to build competencies that enable them to respond to these challenges.

Looking back at the prevailing competency frameworks outlined in sub-section 3.2.1., it can be stated that some of the suggested competencies respond to these challenges. For example, an awareness for inner states and processes is mentioned, including habits and practices of need satisfaction. The lists also emphasize the importance of intrinsic motivations concerning SC and indicate a series of abilities an individual must possess in terms of dealing with and exchanging new information (e.g. ability and willingness for empathic communication). Finally, they highlight the ability to deal with feelings and desires in general and a tolerance for ambiguity and uncertainty in particular.

Nevertheless, the prevailing frameworks express a strong focus on intellectual processes and the application of scientific knowledge and methods in order to reflect, analyze, evaluate, assess, negotiate, or plan in regard to sustainability-related topics. In contrast, competencies related to personal, affective-motivational processes only play a minor role in the prevailing competency frameworks and remain largely unspecific when mentioned. Having its main focus on intellectual and scientific-methodical competencies, these frameworks epitomize the general tendency of ESD to prioritize cognitive skills and information transmission and neglect the "inner worlds" of individuals (Brundiers & Wiek, 2017; Yves et al., 2019; Wamsler, 2020).

As I have described in the previous sections, affective-motivational processes strongly influence and often precede discursive-intellectual endeavors. The concept of personal competencies for sustainable consumption does justice to this observation, describing abilities, proficiencies, or skills related to inner states and processes that can be considered necessary or sufficient to engage with SC (Frank & Stanszus, 2019). Corresponding to the challenges described above, these include an awareness for habits, inner states and processes (emotions, motivations, values, needs and their satisfaction), and psychological coping mechanisms that often remain at an unconscious level. For this reason, Frank et al. (2019a) emphasized that self-reflexivity lies at the heart of key competencies for SC, understood as the ability to distance oneself from, observe, and critically engage with inner states and perceptions. Furthermore, individuals will benefit from an emotional resilience to endure unpleasant emotional states that result from the confrontation with the impact of one's consumer patterns, establishing the ground to pursue intrinsic values in light of reoccurring challenges. Learning scenarios in which the affective-motivational dimension of individual consumption are addressed can help students transforming emotional coping mechanisms into problem-oriented strategies and enable them to endure unpleasant emotional states, thereby strengthening emotional resilience (see also Hamann et al., 2016). As Hunecke (2018) and Frank and Stanszus (2019) have found, the cultivation of psychological resources – meaning personal traits and abilities allowing to overcome difficult situations and realizing a happier life (Hunecke, 2018) – can help individuals dealing with the emotional challenges related to sustainability-related topics. These resources comprise the capacity for pleasure, self-acceptance, mindfulness[7], the ability to construct meaning with regard to one's life, and solidarity. Following this position, a critical competency for SC is hence the ability to connect to and cultivate these resources. The same can be said about ethical virtues, that is to say "manifestations of excellence or character strength that make possible individuals to flourish as human beings" (Fowers, 2005, p. 4). Both Corral-Verdugo et al. (2015) and Brundiers and Wiek (2017) have suggested that the development of virtues such as openness, empathy, curiosity, gratitude, or humility are of great

7 As the term mindfulness will be important in the remainder of this thesis, it is worth mentioning that Hunecke (2018) refers to a different understanding of mindfulness than the one suggested throughout the thesis. Here, it is defined as an unbiased experience that emerges through intentional and continuous awareness of momentary events and processes, necessarily embedded within an attitude of openness, benevolence, and compassion (Grossman 2010, 2015). Hunecke, in contrast, defines mindfulness as "focusing ones' attention fully, intentionally and non-judgmentally, on the present moment" (Hunecke, 2018, p. 39), conceiving it both as a practice and a state of "mindful awareness" (ibid.). With Grossman (2010; 2015), I would rather consider this as a facet of mindfulness, yet not mindfulness in itself. While I will discuss the term more in detail in section 3.3.3., for now, it suffices to recognize the conceptual difference between the use of the term.

importance for fostering sustainable behavior, while also supporting the ability to take care of one's personal well-being in the face of mental and emotional distress. Related to this idea are "mindsets for sustainability" (Wamsler & Brink, 2018). Mindsets describe one's established set of attitudes. Mindsets for sustainability are mindsets that facilitate a constructive, pro-active posture toward the world, such as having a feeling of self-efficacy and a general positive attitude toward the future (see also Ojala, 2012).

Table 3 summarizes the list of personal competencies. This list does not claim to be complete. Instead, it summarizes competencies addressing those challenges of SC described in the previous sub-sections. As discussed above, singular competencies of this list have been already suggested in the broader ESD literature, but have not yet been assembled and conceptualized as personal competencies for SC. As is the case for other lists of competencies, the suggested personal competencies should not be understood as sharply distinct, but represent interrelated and co-dependent constructs.

Table 3: Personal competencies for SC.

Competency	Description	Sources
Ethics	Holding and being connected to intrinsic, sustainability-based values	Maiteny, 2002; Lozano et al., 2017
Self-awareness	Awareness for habits, subjective theories, inner states and processes (emotions, motivations, values, needs and their satisfaction), and psychological coping mechanisms	UNESCO, 2017; Frank & Stanszus, 2019
Emotional resilience	Ability to persevere unpleasant emotional states and pursue intrinsic values in light of reoccurring challenges	Hamann et al., 2016; Frank & Stanszus, 2019
Self-care	Ability to maintain a sufficient quality of one's inner situation and one's sense of well-being, including bodily experiences, thoughts, values, needs and wishes, or emotions	Brundiers & Wiek, 2017; Frank & Stanszus, 2019
Access to and cultivation of personal resources	Immaterial sources of well-being (e.g. capacity for pleasure, self-acceptance, mindfulness, solidarity, or construction of meaning)	Hunecke, 2017; Frank & Stanszus, 2019
Access to and cultivation of ethical qualities	Manifestations of excellence or character strength that make possible individuals to flourish as human beings (e.g. empathy, openness, gratitude, curiosity, humility)	Corral-Verdugo et al., 2015; Brundiers & Wiek, 2017
Mindsets for sustainability	The established set of attitudes (toward oneself, the future, …) are such that they facilitate a constructive, pro-active posture toward the world	Ojala, 2012; Wamsler & Brink, 2018

Having identified personal competencies as important both for SC-related acting and learning, the question that follows is how these competencies can be systematically addressed within ESC. The next sub-section is dedicated to this question.

3.3. Stimulating personal competencies for SC

3.3.1. Recognizing the personal dimension

The aim to develop affective-motivational competencies is not exclusive to ESC, but has become increasingly important in the general field of education. While emotions and motivations have been of interest in the scholarly pedagogical discourse much earlier already (for example in the works of Jean-Jacques Rousseau or Johann Heinrich Pestalozzi, and later in the psychoanalytical pedagogy, see Füchtner, 1979), a growing popularity of affective-motivational learning outcomes in educational practice can be observed since the late 1960s. For one, it was the humanistic educational approach – mainly promoted by humanistic psychologists Abraham Maslow, Carl Rogers, and Harold Lyon – that explicitly targeted such learning goals: Advocates of humanistic education perceived the traditional educational system as authoritarian and argued that classroom activities heavily relied on predefined knowledge transmission, resulting in inadequate learning outcomes and unpleasant learning experiences (Gunisson, 1976). Humanistic education, in contrast, understood itself as 'person-centered', holding that learning activities should always address the whole person, which comprised the cognitive and the affective domain alike (Lyon, 1971; Kirschenbaum, 1982). For another, the late 1960s witnessed the emergence of educational programs designed to address disadvantaged social minorities. A popular example was the *Comer School Development Program*, a program focusing on two poor, low-achieving, predominately African American elementary schools in New Haven, Connecticut (Comer, 1988). In addition to academic expertise, the program aimed to create an educational infrastructure that would allow students to develop social and emotional skills needed to avoid behavioral problems that frequently occurred in these elementary schools[8]. The focus on social and emotional skills was cemented in the late 1980s, when the *W.T. Grant Consortium on the School-Based Promotion of Social Competence* was launched, a project funded by the W.T. Grant Foundation and co-chaired by Roger P. Weissberg (Beaty, 2018). The consortium released a framework for incorporating social and emotional learning goals in schools, and the group listed the emotional skills necessary for emotional competence as "skills for identifying feelings in self or others, skills for managing emotional reactions or impulses, or skills for building the youth's self-management strategies, empathy, self-soothing, or frustration tolerance" (Catalano et al., 1998, ch. 2). This was the beginning of what came to be known as Social and Emotional Learning (SEL).

The core message of humanistic education and SEL was that they stressed the importance of affective-motivational skills and, more significantly, the idea that these skills could be taught. Over the course of the following decades, this idea also became increasingly popular in mainstream education. Affective-motivational learning goals, such as self-awareness, self-esteem, or empathy, found their way into all levels of formal education, leading some scholars to – both critically and appreciatively – speak of a 'therapeutic turn' of the educational system (Ecclestone & Hayes, 2009; Hyland, 2011). Several arguments have been brought forward to justify the stronger consideration of the personal

8 As indicated in footnote 3, I use the term 'skill' instead of competency, because it is used by the authors I am referring to.

dimension, one of them being the “radical impoverishment of education over the last three decades through the obsession with standards, skills, competences and narrow employability objectives” (Hyland, 2011, p. 8) as well as an “excessive regard for the powers of the intellect [and the] obsession with objective knowledge” (Palmer, 1998, p. 61). Overcoming this ‘radical impoverishment’, so it is argued, might lead to several desirable outcomes, such as a better engagement in formal education and lifelong learning, as well as an improved individual well-being and emotional literacy. Especially the latter qualities are deemed important to foster “inclusion, diversity, tolerance, and empathy as part of citizenship” (Ecclestone & Hayes, 2009, p. 122). Finally, emotional literacy and well-being are also seen as outcomes to equip people for the labor market or as essential ‘soft’ personal and social outcomes.

Similar reasons have been suggested as to why personal aspects should be addressed within the larger field of ESD. Yves et al. (2019) argue, for example, that “the condition of people’s inner worlds ought to also be considered a dimension of sustainability itself” (p. 1), a dimension of sustainability that Parodi and Tamm (2018) have referred to as personal sustainability. Education for this purpose directly addresses and deals with people’s inner worlds, including their physical and psycho-emotional well-being. Individuals who are able to take care of themselves might in turn also be more likely to engage in pro-social and environmentally-friendly actions (Geiger et al., 2017; Kasser, 2017). For reasons outlined above, scholars have also suggested that the “root causes of unsustainability are psycho-emotional” (Maiteny, 2005, p. 4) and that educational efforts should therefore “focus more on these personal dimensions to resolve sustainability and development” (ibid.). In particular, it has been argued that affective-motivational competencies are crucial for enabling individuals to constructively deal with sustainability-related content (Ojala, 2013; Frank & Fischer, 2018). Finally, personal competencies, such as self-care or empathy, have been proposed as essential qualities to professionally engage with the cause of sustainability (Brundiers & Wiek, 2017).

While these calls express a growing recognition of the importance of personal competencies within the ESD community, they likewise indicate that prevailing approaches do not sufficiently target the personal dimension, which is particularly true for ESC. To date, efforts to develop personal competencies are still in their infancy, and most publications on such efforts either represent theoretical/conceptual work on the matter or refer to singular and fragmented approaches (e.g. Murray, 2011; Brundiers & Wiek, 2017; Eaton et al., 2017; Gibbs, 2017; Frank & Fischer, 2018; Wamsler et al., 2017; Wamsler, 2020). Where attempts have been related to established learning activities, such as SEL (e.g. Carter, 2016), they almost exclusively target early and primary schools (UNESCO, 2019)[9], often focusing on general social-emotional skills that “can help younger children do better in school” (Sinclair, 2018, p. 7) or prevent social conflicts, like bullying (Sinclair, 2018). Some scholars have recently suggested to further elaborate the link between SEL and ESD, and tailor it to the demands of higher age groups (e.g. concerns for peer approval or a growing desire for personal agency) (Sinclair, 2018; Asah & Singh, 2019), without suggesting, however, how this link should be exactly elaborated

9 As Conley (2015) argues, "the theoretical and empirical literature on SEL [in general] has focused primarily on preschool through secondary school students, and guidelines for SEL practices routinely mention goals and applications for these student populations" (p. 197). To date, especially higher education populations and settings have barely been considered in the SEL framework.

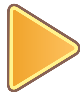
and the required competencies precisely built. Overall, it seems to be an open question as to how personal competencies can be stimulated and which pedagogical formats are suited to do so.

As a general principle, Maiteny (2002; 2005) and Murray (2011) have argued that in order to engage students with sustainability-related topics, these topics should be addressed in such a way that students can personally and emotionally relate to them instead of just theoretically approaching these topics. Sharing this basic assumption, both ESD scholars (e.g. Barth et al., 2007) and policy makers (e.g. UNESCO, 2017) have suggested that forms of Experience-Based Learning (EBL) might be a “key approach” for ESD, describing learning processes “whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). According to its founder David Kolb (1984) experiential learning is characterized by (i) the involvement of the whole person, including their intellectual, sensory, and emotional faculties; (ii) learners’ active use of their previous life and experiences as learners; and (iii) a reflection on earlier experiences aimed at evolving thinking and creating a deeper understanding of the subjective experiences. As such, EBL seems to fulfill the above-mentioned requirement of providing learning scenarios in which students can personally and emotionally relate to sustainability-related topics.

The problem behind EBL’s rationale to engage with subjective experience reflectively is that, contrary to intuition, we lack automatic access to our subjective experience. In fact, most of what we actually experience takes place on a subconscious level (Wilson, 2004; Vermersch, 2008). Consciousness scholars (Petitmengin, 2006; Vermersch, 2008; Bitbol & Petitmengin, 2016) suggested that a fair amount of training and explicit directedness toward subjective experience is required in order to make the various aspects of subjective experience conscious. This includes, in particular, a reconstruction of the embodied dimensions of the experience, that is to say the lived sensory, affective, and somatic components that emerge in the individual body as subject and that make the experience personal (Bengtsson, 2013). Without training, individuals tend to reproduce representations of, and postulate ad hoc explanations for, subjective experience instead of accessing the actual experience itself (ibid.). EBL primarily conceives the reflective process as a discursive activity, hence maintaining a prerogative of "higher level" processing like language and thoughts to subjective "lower level" perception, such as recognizing emotions and bodily perceptions (Dorjee, 2010). As a consequence, the integration of the “whole person” advanced by EBL advocates, runs the risk of not being fulfilled.

Concluding, a central difficulty of building personal competencies for SC is constituted by the paradox that, on the one hand, it requires individuals to personally and emotionally relate to sustainability-related topics and reflect this experience, while on the other hand, they might not have automatic access to this experience. The implications of this paradox concern the field of ESC more generally, because self-reflexivity, understood as learner’s capacity to distance themselves from, observe, and critically engage with their inner states and perceptions (Frank et al., 2019a), is also considered being the foundation for other SC-related competencies (Barth & Fischer, 2012; Fischer, 2012). In search of learning activities that resolve this paradox, mindfulness has recently drawn the attention of ESD/ESC scholars.

3.3.2. Mindfulness: An emerging theme in ESD/ESC[10]



The following article is explicitly dedicated to this topic:

Frank, P., Fischer, D., & Wamsler, C. (2019). Mindfulness, Education, and the Sustainable Development Goals. In W. Leal Filho, A. Azul, L. Brandli, P. Özuyar P. & T. Wall (Eds.), *Quality Education. Encyclopedia of the UN Sustainable Development Goals*. Cham, Germany: Springer. See section 9.9.

The concept of mindfulness is rooted in Buddhist psychology, and was introduced to Western science around 40 years ago. It originates from the Pali term *sati* and its Sanskrit counterpart *smrti*, literally meaning 'memory', 'recognition', 'consciousness' (Pali Text Society, 2012). Its role within Buddhism relates to Buddha's teachings, which are based on the Four Noble Truths, namely: (1) the observation of suffering, (2) the identification of its sources, (3) the realization that suffering can be overcome, and (4) the understanding that there is a path to achieve the latter (Digha Nikaya, 1998). The path to overcoming suffering is called *The Eightfold Path*, whose seventh element is *samma sati* or 'right mindfulness' (Bodhi, 2011). The exact meaning of right mindfulness is controversial, especially since academic interest in the topic has increased at the beginning of the 21st century (Williams & Kabat-Zinn, 2013).

Although current mindfulness research is characterized by conceptual ambiguity (van Dam et al., 2018), in Western culture and science, mindfulness has been most commonly defined as intentional, non-judgmental attentiveness to the present moment (Kabat-Zinn, 1990). It is seen as an inherent quality of human consciousness that is accessible to and empirically assessable in individuals, independent of their religious or spiritual beliefs (Baer, 2003). This conceptualization forms the operational foundation for the vast majority of mindfulness research (Bergomi et al., 2013; Grossman, 2015, 2019). Since its introduction in Western science, an extensive body of research has linked it to established theories of attention, awareness, emotional intelligence, and other cognitive-emotional functions (Brown et al., 2007; Goleman, 2011; Carroll, 2016). In addition, various theories and methods have been developed to assess it as: a state (e.g., Lau et al., 2006); a trait, in terms of one's predisposition to be mindful in daily life (e.g. Baer et al., 2006); and a practice (mindfulness training, e.g. Black, 2011). Without training, trait mindfulness appears to be stable over time (e.g. Brown & Ryan, 2003). However, empirical studies suggest that repeated mindfulness training can cultivate greater state mindfulness over time, which presumably contributes to increases in trait mindfulness (Kiken et al., 2015).

Over the past two decades, the concept of mindfulness has received increasing attention in academia and various fields of practice, including psychology, medicine, businesses, sports, and even the military (see van Dam et al., 2018). The number of scientific publications on the topic has multiplied tenfold over the past ten years (American Mindfulness Research Association [AMRA], 2019). Several

10 The content of this section is largely identical to the indicated article. I have restructured the order of some of the paragraphs and made minor changes in the wording.

studies associate mindfulness with health and well-being (Grossman et al., 2004), self-acceptance (Thompson & Waltz, 2008), self-efficacy (Sanaei et al., 2014), emotional regulation (Hill & Updegraff, 2012), as well as memory, attention and cognitive performance (Eberth & Sedlmeier, 2012; Zenner et al., 2014). For these reasons, mindfulness – especially mindfulness practice - has recently received growing attention in the field of education, too.

For several years, meditative practices have been occasionally used in educational contexts (Bush, 2011; Morgan, 2015). However, it was not until around the 2000's that such practices received renewed attention among educators, following the broader interest in mindfulness within other fields. Since then, mindfulness has penetrated all areas of education, from preschool to K-12 (kindergarten to grade 12), to higher and adult education (Schonert-Reichl & Roeser, 2016; Eaton et al., 2017). As such, mindfulness became an important vehicle for what has described above as the therapeutic turn of and the growing interest in addressing emotions within education (Ecclestone & Hayes, 2009; Hyland, 2011). At the same time, critics have noted that this renewed interest in mindfulness was spurred by surprisingly divergent interests (Ergas, 2015). In line with the arguments provided for the stronger consideration of the personal dimension, at least three different motivations have been identified:

The first, and maybe most prominent motivation, is rooted in mindfulness practice's alleged potential to mitigate deviant behaviors and thus improve students' functioning in education systems. Clinical studies have shown that mindfulness can counteract symptoms of depression, stress, anxiety, attention dysfunction and other, related symptoms (Grossman et al., 2004). This inherently pathological notion sees mindfulness as a remedy that can treat or prevent medical disorders or other health issues. In education, this line of reasoning is reflected in attempts to use mindfulness as an intervention to remedy aggressive and maladaptive classroom behaviors (Singh et al., 2007; Franco et al., 2016).

The second rationale is based on a more salutogenetic narrative. Rather than counteracting the causes of unwanted behavior, the emphasis here is on using mindfulness as a practice and resource to strengthen factors that contribute to good health. In education, this is manifested in programs and studies that explore the positive contribution that mindfulness can make to maintaining and improving individual resilience to stress, both among teachers and students (Meiklejohn et al., 2012). Mindfulness, it is argued, can prepare learners and teachers to cope with the demands and hardships of educational settings.

The third rationale positions mindfulness as a contributor to enhance students' academic performance. Typically, research in this vein refers to the demonstrated effects of mindfulness on awareness, concentration, and other cognitive functions, and links these to academic attainment (Beauchemin et al., 2008). According to this rationale, mindfulness might help boosting the quality of academic work in educational settings.

Today, mindfulness has arrived in mainstream education (e.g. Rhodes, 2015). The number of academic publications on mindfulness and education is steadily increasing, having multiplied tenfold between 2006 and 2014 (Schonert-Reichl & Roeser, 2016). Such studies have mainly investigated the potential of mindfulness to equip learners with social-emotional skills, and consequently improve learning

outcomes, the well-being of teachers and learners, and improve learning environments (pre-school, primary and secondary education, as well as higher education). This trend is strengthened by the appearance of numerous textbooks on mindfulness and education, ranging from scientific handbooks (e.g. Schonert-Reichl & Roeser, 2016), to practical guides "for cultivating mindfulness in education" (e.g. Nẫth-Hanh & Weare, 2017). The emergence of international organizations and networks, such as the *Association for Contemplative Mind in Higher Education* (ACMHE, 2015), the Mind and Life Education Research Network (MLERN, 2019), the Association for Mindfulness in Education (2019), or the British-based Mindfulness Initiative (2019) provide further proof of mindfulness' influence in today's youth and adult education systems.

More recently, a fourth potential of mindfulness practice has attracted the interest of educators. Apart from its potential to improve cognitive-emotional functions, mindfulness practices are attributed a potential to develop interpersonal qualities, such as compassion and pro-social behaviors (Luberto et al., 2018), and ethical virtues (e.g. patience or equanimity, see Grossman, 2015). Following a larger critique concerning the widespread neglect of the inherent ethical dimension in mindfulness practice (e.g. Monteiro, 2015) and its reduction to the three aforementioned potentials (coping with maladaptive behaviors, improving grades, and individual resilience). This fourth potential has prompted scholars to call for a revolution in the use of mindfulness in education. Most important, the re-invention of mindfulness in education should place the cultivation of "moral and civic virtues" at the forefront (Simpson, 2017). Mindfulness, it is argued, can support this transformation by clarifying and challenging values, as well as enabling a radical critique of society. Such deliberations have been a major driver in the introduction of mindfulness training into ESD.

Nevertheless, in contrast to the prominent role of mindfulness in the general field of education it has, so far, received limited attention in the larger ESD context, especially in academia (Wamsler et al., 2017). It is only recently that contemplative teaching methods, including mindfulness, have explicitly been promoted by scholars, practitioners and mindfulness networks as a new way to address ecological and socio-economic challenges in ESD settings (e.g. Gugerli-Dolder et al., 2013; Eaton et al., 2017; Wamsler et al., 2018). More precisely, it is seen to potentially strengthen peoples' ability to deliberately focus their mind in a way that they become more sensitive for their own mindsets, values, emotions, and ensuing actions and direct those toward the vision of a sustainable development (e.g. Wamsler & Brink, 2018; Wamsler et al, 2018).

Against this backdrop, mindfulness practice has recently been linked to the promotion of sustainable consumption and ESC, too (e.g. Rosenberg, 2005; Ericson et al., 2014; Armstrong & Jackson, 2015; Bhar, 2018; Dhandra, 2019; Helm & Subramaniam, 2019; Hunecke & Richter, 2019). In a systematic literature review, Fischer et al. (2017) have identified four mechanisms of mindfulness according to which the practice could theoretically foster more sustainable consumer actions (see also Frank et al., 2020, submitted):

- Firstly, the disruption of routines or switching off the autopilot (Grossman et al., 2004) by enhancing introspective capacities and thus providing the grounds for changing previously unconscious routines is a broadly recognized potential effect of mindfulness practice. This

could mean that unconscious, non-sustainable consumption choices could be elucidated and diminished through the practice (Rosenberg, 2005; Bahl et al., 2016).

- Secondly, Mindfulness practice may be conducive to the clarification of values and supporting the role of non-material values in people's lives (Ericson et al., 2014). As previously mentioned, mindfulness practice has the aim of counteracting unwholesome qualities (greed, delusion, aversion) by cultivating openness, generosity, kindness and mental clarity (Grossman, 2015). The fostering of such benevolent attitudes is also associated with an increase in intrinsic and socially oriented values and behavior and a decrease in materialistic, hedonistic values (Richins & Dawson, 1992; Burroughs & Rindfleisch, 2002; Kasser et al., 2014).
- The third mechanism refers to recent findings according to which pro-social behaviors are explicitly increased through meditation practices (Leiberg et al., 2011; Lim et al., 2015). This process is seen to be initiated through the development of compassion (Condon et al., 2013). Pro-social behavior is consecutively positively linked to pro-environmental intentions and behavior (de Groot & Steg, 2008; Steg et al., 2014; Pfattcheicher et al., 2016).
- Fourthly, and as a result of the aforementioned mechanisms, practicing mindfulness could contribute to adjust individuals' attitudes and behaviors. Mindfulness practice is deemed to support an enhanced awareness of immediate daily experiences. In the current research, it has been shown to reduce self-perceived inattention to one's own behavioral patterns, which is associated with the attitude-behavior-gap (Chatzisarantis & Hagger, 2007). That way, it is associated with a greater capacity to make more congruent choices toward more sustainable consumption patterns (Rosenberg, 2004; Ericson et al., 2014).

Recently, a fifth mechanism was suggested by Geiger et al. (2018), namely to foster SC through improving individuals' health and well-being. As mentioned before, there is ample evidence on how mindfulness practice is instrumental to physical and psychological health and well-being. Psychological well-being has been discussed both as a consequence and a precondition of sustainable behavior, and physical health behavior was shown to correlate positively with ecological conservation behavior (ibid.).

Summing up, mindfulness practice is increasingly recognized as a means to promote SC. As I will demonstrate in the following section, this recognition is primarily due to its potential to provide individuals access to their inner states and processes.

3.3.3. Cultivating self-reflexivity through mindfulness

Introducing mindfulness practice into ESC is based on the idea that state/trait mindfulness is beneficial to the principles of sustainable consumption and that it can be cultivated through mindfulness practice. Alongside the growing popularity of mindfulness practice, however, also conceptual confusion increased about what exactly mindfulness practice is. The literature makes a conceptual distinction between two categories of mindfulness practices: Mindfulness Meditations (MMs) and Mindfulness-Based Interventions (MBIs) (Chiesa & Malinowski, 2011; Hanley et al., 2016). Even though the

distinction between both categories is not clear-cut, MMs usually describe meditative practices that are often rooted in spiritual traditions (e.g. Zen, Vipassana). MBIs, on contrast, usually refer to secular mindfulness practices (e.g. Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT) etc.). MBIs usually target specific goals, as for example physical or psychological ailments (Hanley et al., 2016). They are generally composed of a larger collection of activities and therapeutic techniques, but usually include MMs as a core activity (ibid.).

MMs are commonly divided into two subcategories: focused attention and open-monitoring meditation. The distinction is based on which ways attention and awareness are directed (Lutz et al., 2007; Chiesa & Malinowski, 2011). Focused attention meditation directs attention on a specific internal or external phenomenon. A classic example is the focusing on the body or the breath (Lutz et al., 2007; Hanley et al., 2016), but it can also be directed towards thoughts or feelings, or towards an external object such as a candle flame or a picture. While practicing, one tries to avoid any form of distraction to achieve mental stability. In addition to mental stability, the meditator seeks to improve self-monitoring skills, as they always bring the attention back to the object of contemplation as soon as they notice that their mind is wandering (Hanley et al., 2016). Neither is attention paid to the nature of the distraction, nor should judgments be made about the fact that one’s mind had wandered. Open-monitoring meditation aims to establish general awareness of experiences. This technique helps to develop serenity and thus reduces habit patterns or other forms of reactive behavior (Vago & Silbersweig, 2012). Attention is not directed, instead, constantly changing stimuli, including sensations, feelings and thoughts, are observed as they arise, without any intention to change what occurs (Chiesa & Malinowski, 2011; Hanley et al., 2016). Either way, the very essence of such practices is to raise “introspective awareness of lived experience” (Grossman, 2019, p. 102), that is to say an awareness for inner states and processes, such as bodily and sensory sensations, emotions, thoughts, and thinking patterns that usually remain hidden within individuals’ unconscious (Gunaratana, 2018; Frank et al., 2019a).

Researchers suggest that one of the key mechanisms of mindfulness practice explaining its various reported effects is that it helps those practicing mindfulness to „disidentify from the contents of consciousness and view his or her moment-by-moment experience with greater clarity and objectivity” (Shapiro et al., 2006, p. 377). In fact, the cultivation of such a “witnessing perspective” (Vago, 2014, p. 30) is an important benefit experienced by mindfulness practitioners (Pagis, 2009; Kerr et al., 2011). Studies inquiring introspective self-reports (Fox et al., 2012) as well as their relation to neurological processes (Lutz et al., 2007; Jo et al., 2015) empirically corroborate the claim that mindfulness training improves the ability to introspect. In addition, other research finds that mindfulness practice can improve cognitive abilities (such as memorization) that are related to introspection (Chiesa et al., 2011), or at least facilitate the verbalization of inner experience (Fox et al., 2012).

Through the mechanism of developing awareness for inner states and processes, mindfulness practice is considered being a promising activity to engage practitioners with self-reflexive learning processes, particularly those related to SC (Davies, 2012; Eaton et al., 2016). For one, mindfulness practices might help strengthening “people’s ability to deliberately focus their mind in a way that they become more sensitive for their own values, emotions and ensuing actions” (Stanszus et al., 2017, p. 7). By

raising awareness of inner states and processes, individuals can better relate to their personal needs and values while sharpening the observation of drivers in unsustainable consumption routines. This can enable them to pursue consumptive acts that satisfy their needs while being in concordance with prevailing values. For another, the practice might increase awareness for unconscious affective-motivational factors that influence the way individuals deal with new information. By increasing the awareness of such factors, they can be made transparent and addressed (Gibson & Wisner, 2016), which can help avoiding cognitive distortions (Holas & Jankowski, 2013; Hafenbrack et al., 2014; Vago, 2014) and improve the conditions for SC-related learning processes (Frank & Fischer, 2018).

In addition, mindfulness practice might even carry a potential to stimulate other personal competencies for SC. E.g. Grossman (2015) illustrates how the core activity of looking inwards is inextricably interwoven with the application and development of ethical qualities:

> *"There is an emphasis upon a personally experienced process, in which we examine how our awareness is influenced by "trying out" the possibility of eliciting kindness, openness, and patience toward immediate experience, be the experience pleasant, unpleasant, or neutral. There is no moral imperative or expectation of success, just a gentle invitation to give it a try. In other words, it is a kind of open-ended investigation of what occurs within our perceptible experience when we attempt to be kind and accepting to mental content that unfolds from moment to moment, paradoxically even allowing the failure to achieve these states to be part of the process (i.e., accepting the fact that we may not be able to feel any sense of kindness at the moment may, nevertheless, still reinforce the process!)"* (p. 20).

Through this process, mindfulness is also conceived as a practice that promotes the development of implicit ethical values that are both self- and other-oriented. Cognitive-focused learning is more concerned with the acquisition of external information and conscious thought processes (Bandura & Schunk, 1981). As argued previously, ethical or moral values conveyed in that way may trigger resistance or superficial acceptance that does not change individual value systems or behavioral patterns. The practice of mindfulness, in contrast, envisages ethical development based on intuitive and affective understanding of what is right and wrong (Monteiro et al., 2015). In traditional mindfulness and Buddhist teachings, the practice of meditation and awareness of our lived experiences bear the intention to transform the so-called unwholesome emotions and actions into wholesome or 'right' emotions and ethical actions (Grossman, 2015). As a consequence, mindfulness practice might also contribute to the development of mindsets for sustainability, which "may translate into increased action-taking especially for measures that are 'other-focused' and/or support pro-environmental behavior" (Wamsler & Brink, p. 59).

Summarizing, mindfulness practice can be described as a process of observing subjectively lived experience, including bodily and sensory sensations, emotions, thoughts, or thinking patterns. Intending to look at these inner states and processes with an accepting attitude develops ethical qualities, such as openness, compassion, or equanimity, which are assumed to result in improved emotional resilience and self-acceptance. Since it is essential to the practice to turn inwardly with a caring mindset, it is inherently supposed to be a form of self-care. The capacity to be aware of and tolerate unpleasant experiences comes along with the possibility to disrupt automatic and habitual

reactions and replace them by self-determined actions based on one’s values, which can in turn pave the way for sustainability-oriented action.

Given this background, mindfulness practice seems to be the educational activity par excellence to stimulate personal competencies for SC. What is missing so far, however, is empirical evidence on actual effects of mindfulness practice in educational settings. The present PhD thesis set out to contribute to close this empirical gap.

4. Empirical research and findings

The empirical part of this thesis is primarily based on a qualitative research approach. Over the course of the last decade or so, concerns have been expressed by some scholars about the quality of qualitative research in education (Dillon & Wals, 2006; DeJaeghere et al., 2019). These concerns must not be confused with general doubts regarding the value of qualitative approaches, as they have been expressed for a long time in the educational sciences (e.g. von Saldern, 1992). Quantitative and qualitative research designs are nowadays conceived as two ends of one research continuum (Creswell & Creswell, 2018) that make different, yet equally valuable contributions to the field of research, depending on the question that needs to be answered. Qualitative research is not guided by the same interests as quantitative inquiry, which usually envisages generalizable, standardized, and reproducible data that allow for hypothesis testing. Qualitative data, in contrast, often serves exploratory purposes, aiming to understand, for example, "the meaning a person, a community, or a society, give to some phenomena (this can be a situation, an activity, an institution, an event, etc.), and how that understanding gives shape to behaviors or norms" (DeJaeghere et al., 2019, p. 6). Departing from the reconstruction of subjectively lived experience and its interpretation by individuals in educational settings, qualitative research can, for example, shed light on the various potentials, conditions, and limitations of specific learning activities, which can be of great value especially for practitioners and policy makers. Nevertheless, in order for qualitative research to make this valuable contribution, it is important that the researchers are self-reflexive about personal factors that determine the research questions, the way these questions are addressed, and how the collected data is analyzed (Berger, 2015; Alvesson & Sköldberg, 2017).

Among others, Dillon and Wals (2006) and DeJaeghere et al. (2019) criticize that the ontological, epistemological, methodological, and ideological reasons leading to the actual research question and procedure are not always made transparent. Sometimes, even the precise methods applied in a specific study are not clearly communicated (Dillon & Wals, 2006), which diminishes both the quality and comprehensibility for other scholars, practitioners, and policy makers alike. Addressing this problem, Dillon and Wals (2006) have suggested that qualitative researchers should be transparent about the ontological, epistemological, methodological, and axiological premises underlying their research. Adding to this, the *Building Evidence in Education* working group recommended that in order to meet the criteria for high-quality qualitative research, studies should yield:

> *"a solid explanation of the study purpose and the related methodology used; a detailed account of the data collection process, including sampling and/or selection of participants; an explanation of the analysis process and how data were analyzed to arrive at findings; and findings that are supported by detailed description of data"* (DeJaeghere et al., 2019, p. 5).

Following these recommendations, section 4.1. provides general reflections on the empirical work of the thesis as a whole and summarizes its overarching epistemological and methodological foundations[11]. As the thesis consists of several independent studies, the following sections and the related articles (4.2 – 4.4.) contain more specific information about each of the studies. Section 4.5. synthesizes the independent findings and reconnects them with the overall research question.

4.1. General research question and approach

The overall research interest of this thesis is guided by the question as to how personal competencies for SC can be defined, observed, and developed within educational settings. A particular focus lies on the potential of mindfulness practice to stimulate these competencies. In order to inquire into these questions, the presented research draws upon three different MBIs that were specifically tailored to build personal competencies for SC, namely (1) the BiNKA training, (2) a seminar format stimulating processes of reflexive knowledge generation, and (3) a seminar format in which students pursued transformative projects of their individual consumer behavior (compare table 4; a detailed description of each MBI follows later on in this section).

Table 4: Overview on the three MBIs constituting the empirical basis of this thesis.

	MBI I	**MBI II**	**MBI III**
Type of intervention	MBSR-based intervention with selected ESC contents	University seminar comprising mindfulness meditations as practiced within MBSR courses	University seminar comprising mindfulness meditations as practiced within MBSR courses
Number of participants	216 participants	55 participants	50 participants
Number of times the intervention was offered	12 courses offered during 2016	2 courses offered during winter semester 2016/2017	2 courses offered (one during winter semester 2017/2018 and one from summer semester 2018 until end of winter semester 2018/2019)
Focus	Focus on behavioral impacts	Focus on learning impacts	Both learning and behavioral focus

At the heart of the research lies the BiNKA training. The BiNKA training is based on the Mindfulness-Based-Stress-Reduction program (Kabat-Zinn, 1990), enriched by selected ESC contents (see Stanszus

11 I will leave out a repetition of the ontological foundations, as these have been thoroughly described in section 3. I also think that I have already made transparent my ideological standpoint from which this thesis is written. For the sake of clarity, I will extrapolate some of the general ideological premises my thesis is rooted in: (1) Sustainable development (including sustainable consumption) is a vision worth striving for; (2) formal education is an adequate means to promote this vision, insofar as it is predicated upon the overall aim to cultivate autonomous and mature citizens; (3) educational research should inquire into how formal education should be designed in order to equip learners with the means necessary to act in accordance with the vision of sustainability.

et al., 2017). The training was a core element of the research and development project BiNKA (German acronym for Education for Sustainable Consumption through Mindfulness Training), carried out between 2015 and 2018. BiNKA was the very first research project that empirically investigated the relationship between mindfulness training and sustainable consumption in forms of an intervention study. The training was delivered to secondary school students, university students, and employees, in total reaching out to 216 participants. Inspired by the experiences and results of the BiNKA project, the other two MBIs were developed and made subject to empirical inquiry. Here, the mindfulness meditations practiced within MBSR were embedded into a university seminar and complemented by a series of other activities. The MBIs were conducted at Leuphana University in Lüneburg/Germany during winter term 2016/2017 (second MBI) and from winter term 2017/2018 until summer term 2019 (third MBI) respectively. MBI II was offered to 55 Bachelor and Master students from different disciplines, while MBI III was offered both to freshmen from different disciplines (30 attendees) and to advanced Bachelor students from environmental sciences (20 attendees). The three MBIs had slightly different foci: As mentioned, the initial aim of the BiNKA project was to find out whether and in which way mindfulness practice would influence the practitioners' consumer behavior. It had hence an orientation toward the behavioral impact of the training. The second MBI, in contrast, focused more on the learning processes, or, more specifically, on individuals' ways to deal with new information related to SC. The third MBI finally intended to synthesize both approaches.

As mentioned, the empirical work of the thesis followed a qualitative, exploratory research logic, characterized by a non-linear, flexible procedure in which the research question and the applied methods change over the course of the research process (see figure 6). As a consequence, the research undertaken for this thesis did not follow a fixed plan, but evolved out of research interests and interim findings related to the MBIs. The inquiry of the MBIs did hence not follow a singular research design. Instead, a different design was applied for each analysis. This had two reasons: For one, the circumstances were different and did not permit to pursue the same process of data collection. Within the university seminars, the coursework and examination could be designed in such a way that they could serve as data for the research inquiry of the thesis. Within the BiNKA project, it was not possible to collect this type of data. For another, the research focus varied slightly between the BiNKA training and the two seminar formats: As mentioned before, the MBI was the first of its kind empirically investigating the relationship between mindfulness training and sustainable consumption. Among other interests I will address later in this section, it had hence a strong exploratory orientation toward this nexus and therefore needed to be addressed from different methodical angles (compare Frank et al., 2019b for a detailed explanation). MBI II and III, in contrast, were primarily investigated in terms of how the students experienced the courses and, more importantly, which kinds of learning outcomes (competencies) these courses could stimulate. As the reading of the empirical articles of this thesis will reveal, the concept of and focus on personal competencies emerged out of this process and steadily became more explicit, although it had implicitly guided the research from the very beginning.

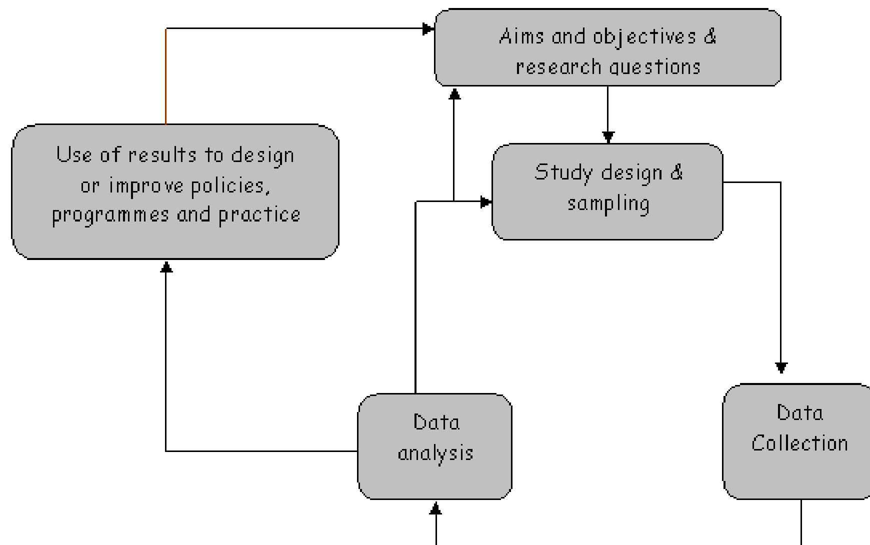


Figure 6: Qualitative research procedures after Crabtree & Miller (1992, p. xv).

The research was predicated upon the epistemological assumption that what individuals say about their participation in the MBIs and their possible learning experience reveals something about personal competencies and hence about the way they deal with inner states and processes. This assumption is generally disputable, as several scholars have demonstrated that self-reports on the experience of inner states and processes are prone to a variety of distortions (e.g. Nisbett & Wilson, 1977; McNally, 1996; Kahneman, 1999; Wilson, 2004; Johansson et al., 2005; Haybron, 2007)[12]. However, I have deliberately decided to base my research on the subjective experience of the studies' participants. This deliberate decision is in itself predicated upon an ontological and ethical assumption: The ontological assumption is that human beings are potentially capable of getting access to and speak about their inner states and processes. As I have described in section 3.3.1., we do not have automatic access to the latter. However, evidence suggests that we might be able to learn to connect to our inner states and processes (see also section 3.3.1, as well as section 4.3.1. for a more detailed discussion), even though this evidence is not conclusive (Schwitzgebel, 2008; van Dam et al., 2018). This leads me to the ethical assumption, namely that as long as there is no cogent evidence proving the opposite, I consider it preferable to conceive individuals as potentially capable of learning how to observe – and possibly change – their "inner worlds" (Ives et al., 2019). Obviously, this assumption shall not lead to a naive

12 This line of scepticism toward self-reports must not be confused with another fundamental concern about sharing subjective experience, which has been conceptualized as the "middle transcendence" (Schütz & Luckmann, 1979; Luckmann, 2002). According to this concept, it is a universal human condition to be surrounded by fellow human beings who are fundamentally different to oneself. This otherness imposes boundaries in terms of the possibility to communicate one's and access the life-worlds of others. Nevertheless, language is considered being a means to transcend these boundaries, which is why many (especially qualitative) research methods make use of self-reports in order to reconstruct subjective life-worlds, thereby assuming that individuals have access and can speak about their life-worlds. This is where the scepticism expressed here differs from the concept of the middle transcendence: The idea of this scepticism is that we are "strangers to ourselves" (Wilson, 2004, title). It is not due to the otherness of our fellow human beings, but rather the unfamiliarity with our own subjective experience that makes it difficult to make reliable statements about the latter.

acceptance of introspective statements as evidence for personal competencies. I will describe in more detail how I avoided this problem throughout the next sections.

What was also common among the individual studies was that they were guided by the same practical interests. Following Dillon and Wals' (2006) classification of three different ways of conceptualizing research on environmental education, I understand the approach undertaken in this thesis as a triad of research as evidence, research as co-learning, and research as activism. Firstly, it is research as activism, as each of the MBIs had explicit transformational purposes and intended to make a contribution to SD in general and SC in particular (see also footnote 11). Secondly, it is research as co-learning, because in the cases of MBI II and MBI III, I inquired the affective-motivational challenges of dealing with arguments and engaging in sustainable consumption in collaboration with the students. Furthermore, I have been involved in these MBIs as the lecturer of these educational programs. In this role, I had a particular interest in understanding how the students experienced the various learning activities composing the MBIs with regard to the challenges they faced, which was part of their inquiry. Based on this information, I could reflect the way I ran the courses in order to be able to improve the programs with regard to the envisaged learning targets and develop my own teaching skills in delivering the programs. Dillon and Wals (2006) describe the role of the researcher in this approach as "actively-detached" (p. 553). I consider this an appropriate description of my role as a lecturer of the MBIs, since in combination with my role as a researcher, I still aimed to understand the participants' experiences of the MBIs as objectively as possible. In order to do so, thirdly, my inquiry needed to be research as evidence, because its primary interest was to find out whether and to what extent the introduced MBIs could contribute to stimulating personal competencies for SC. For this purpose, I have made use of established qualitative methods that have been shown to allow for a scientifically sound data collection and analysis in which the influence of the researcher involved is controlled. I have explicated the rationale and application of each of these methods in the individual studies.

Following the described triad of research interests implied a combination of research paradigms, defined by DeJaeghere et al. (2019) as "different stances on knowledge production" (p. 15). The authors distinguish between three different paradigms, namely (1) the interpretive/constructionist paradigm, aiming to interpret, understand, and construct meaning of subjective experience, (2) the critical paradigm, envisaging to create change and reveal hidden perspectives and causes, and (3) the deconstructive paradigm, pursuing the aim to deconstruct, challenge, and replace prevailing assumptions about a specific phenomenon. The overall research procedure of my thesis allowed me to combine these three paradigms in a meaningful way. Given that I have not been actively involved in teaching MBI I and that the inquiry of MBI I preceded the offering of MBI II and MBI III, this part of my research gave me the occasion to get a more holistic perspective on what is happening when people practice mindfulness. Apart from reconstructing and understanding the participants' experiences with the MBI, I intended to critically engage with the topic of mindfulness practice, including how most of the related research on mindfulness practice is undertaken. Moreover, I tried to deconstruct prevailing assumptions on what mindfulness training does (see Frank et al., 2019b; Frank et al., 2020, submitted). Based on these insights, I then envisaged to build MBIs and research designs that helped to avoid the potential problems related to the interpretation of people's mindfulness

practice experience, as I had identified them within the inquiry of MBI I when interpreting how participants experience mindfulness practice. In summary, the research of MBI I was more strongly (though not exclusively) guided by a critical and deconstructive research paradigm, while the studies related to MBI II and MBI III primarily applied an interpretive/constructionist paradigm, which was, however, inspired by the critical and deconstructive perspectives obtained from the inquiry of MBI I. How these general reflections were translated into specific methodological and methodical steps will be described in the individual studies and the related sub-sections found below.

In total, seven out of the ten articles published within the framework of this thesis have been dedicated to the conceptualization and empirical research of the three MBIs. Since the BiNKA training stood at the beginning of the research and also represented the 'purest' form of mindfulness practice among the three MBIs, the majority of the articles are dedicated to this training (five articles). In one out of these five articles, results of the BiNKA training are compared with those of the second MBI. In addition, one article is exclusively dedicated to this MBI. Finally, one article describes and analyzes MBI III (see table 5).

Table 5: Articles covering the empirical inquiry of this thesis.

Section	**Article**	**MBI I**	**MBI II**	**MBI III**
4.2.1.	Stanszus et al. (2017). Education for Sustainable Consumption through Mindfulness Training: Development of a Consumption-Specific Intervention	x		
4.2.2.	Frank, Stanszus et al. (2019). Cross-fertilizing qualitative perspectives on effects of a mindfulness-based intervention. An empirical comparison of four methodical approaches	x		
4.2.3.	Stanszus et al. (2019). Healthy eating and sustainable nutrition through mindfulness? Mixed method results of a controlled intervention study	x		
4.2.4.	Frank et al. (2020, submitted). What happens when people start to meditate on consumption? Insights from a qualitative intervention study	x		
4.3.1.	Frank, Sundermann et al. (2019). How mindfulness training cultivates introspection and competence development for sustainable consumption	x	x	
4.3.2.	Frank & Fischer (2018). Introspektion und Bildung für nachhaltigen Konsum: Ein Lehr-Lern-Format zur systematischen Selbsterforschung in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte – Leuphana Universität Lüneburg. In: Leal, W. (Ed). Nachhaltigkeit in der Lehre: eine Herausforderung für Hochschulen. Springer, Wiesbaden, 469-485		x	
4.4.1.	Frank & Stanszus (2019). Transforming consumer behavior: Introducing self-inquiry-based and self-experience-based learning for building personal competencies for sustainable consumption			x

In the remainder of this section, I will guide the reader through these publications in the order presented in table 5. Each sub-section provides a brief overview of one article. Especially in the case of the BiNKA training, the content of the different publications somewhat overlaps or anticipates findings of later articles. For this reason, I will provide a brief explanation as to why the article appears in the order suggested and summarize its main contribution to answering the research question, followed by an explanation on how the article relates to the following one. Obviously, these are dense descriptions of the article contents and are not meant to replace the reading of the full article.

My intention is to help the reader extract the core message when reading the related article of a sub-section. Sub-sections are structured according to the MBIs they refer to. In order to make the evolution of the MBIs transparent, each of the main sections begins with a description of the related MBI and ends with a summary of the main findings that led to the development of the subsequent MBI.

4.2. MBI I: The BiNKA training

4.2.1. Education for Sustainable Consumption through Mindfulness Training: Development of a Consumption-Specific Intervention (see section 9.2.)

This article describes the theoretical background, development, and content of the BiNKA training (see table 6). It elaborates the conceptual connections between mindfulness and ESC as they were seen in the beginning of the research process, offers insights into the process of adapting mindfulness practice to ESC, and describes how the training was precisely delivered to participants. As the article was written while first research had been already conducted, it concludes with lessons learned and an outlook on future work seeking to tap the potential of MBIs to form more holistic approaches to sustainability education. The latter will be particularly relevant when moving toward the development of MBI II and MBI III.

Table 6: Summary of the BiNKA training content (taken from Frank et al., 2019a).

Session	Content
Session 1	**Introduction: What is mindfulness?** - Course schedule and general conditions - Definition and functioning of mindfulness - Introduction of “Bodyscan” - The "autopilot"
Session 2	**Dealing with challenges and difficulties in meditation** - Introduction "Breathing Observation" - Body scan - What are the challenges to be mastered during meditation?
Session 3	**(Un-) Satisfaction – "I can't get no satisfaction!"** - Introduction “mindful movement” - Breathing observation - Body scan - What makes me (un-)satisfied?
Session 4	**Emotional Intelligence: Dealing with difficult feelings** - Breathing observation - Introduction of “walking and standing meditations” - Perceiving and naming feelings
Session 5	**Wishes and needs** - Basis of mindful communication - Speaking in feelings and needs instead of demands and judgments - Introduction to the practice of mindful encounter

Session 6	**Friendliness and compassion** - Introduction to the meditation of kindness and goodness (Metta-Meditation) - The importance of a benevolent and friendly attitude towards ourselves and the world.
Day of mindfulness	**Gratitude and appreciation** - Walking and standing meditation - Breathing observation - Introduction of “mindful eating” - Metta-Meditation
Session 7	**Mindful consumption – being and having** - Mindfulness at the sensory gates - Mindful movement - What is mindful nutrition, what is mindful consumption?
Session 8	**A mindful world – from the inside out** - Introduction to 4-element meditation - Walking and standing meditation - Metta-Meditation

4.2.2. Cross-fertilizing qualitative perspectives on effects of a mindfulness-based intervention. An empirical comparison of four methodical approaches (see section 9.8.)

The BiNKA training has been inquired following a Mixed Methods study design (see figure 7). The contribution of this article to the overall aim of the thesis is two-fold: For one, it provides reasons as to why research on mindfulness practice generally benefits from a qualitative inquiry instead of solely applying quantitative methods; for another, it illustrates why it is advantageous to inquire mindfulness practice with a combined qualitative analysis approach, as was done within the BiNKA study. More precisely, it provides a comparison of four different analytical methods – qualitative content analysis, interpretative-phenomenological analysis, grounded theory, and discourse analysis – in terms of their potential for understanding (effects) of a mindfulness practice. While the article also anticipates some of the results of the qualitative BiNKA study, it should be primarily read here as a methodological reflection on how to qualitatively investigate mindfulness practices, such as the BiNKA training. In this sense, this second article also lays the methodological ground for the qualitative results paper (see sections 4.2.4./9.10.).

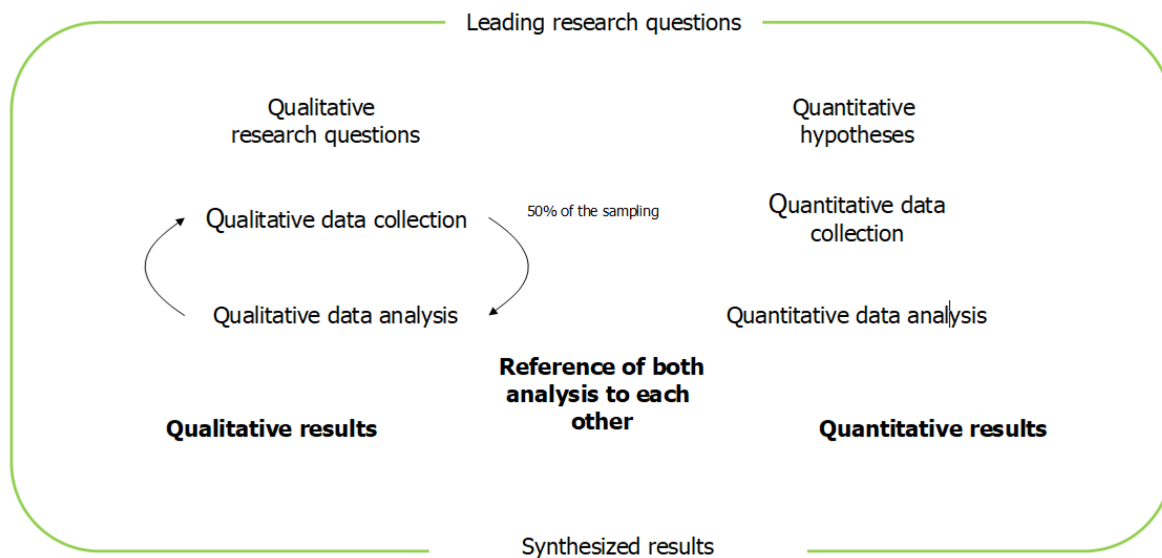


Figure 7: Mixed Methods Research Design of the BiNKA study.

4.2.3. Healthy eating and sustainable nutrition through mindfulness? Mixed method results of a controlled intervention study (see section 9.5.)

This article is the first one focusing on the empirical results of the BiNKA study. It follows a more specific research interest than the larger BiNKA project, namely to find out whether the BiNKA training fostered more healthy and sustainable eating behaviors as part of the general field of consumption. It is rooted in the Mixed Methods design of the BiNKA study, combining quantitative and qualitative research by triangulating and correlating quantitative and qualitative results (figure 7). Since the qualitative content analysis was introduced in the BiNKA research for the specific purpose to relate the quantitative and qualitative inquiry to each other (compare Frank et al., 2019b), for this study, only results from qualitative content analysis were considered out of the broader qualitative research part (4.2.2./9.8.). For reasons explained in the article, the study was limited to the student population (n=76/n=11). Results from both qualitative and quantitative data indicate that the MBI exerts effects on mindful eating. Effects on sustainable nutritional behaviors, in contrast are limited and only appear in the qualitative data at pre-behavioral stages of consumption, such as attitudes and intentions. The overall contribution of the article to the thesis is twofold: For one, it empirically illustrates the additional explanatory value of qualitative research on mindfulness in comparison to purely quantitative inquiry (see 4.2.2./9.8. for a theoretical discussion). For another, it provides first evidence that the effects of mindfulness practice might be dependent on the interests that initially motivate participants to engage in the mindfulness practice. People tend to have an interest in changing unhealthy eating habits. However, in order to obtain stronger effects on sustainable nutritional behaviors, the article suggests to develop MBIs with a specific focus on sustainable nutritional behaviors that openly advertise the aim of the intervention. This way, it might create a common intention in target groups who are looking for ways to put their altruistic intentions into practice, e.g. in sustainable consumption education programs. The following article helps to better understand why this is the case.

4.2.4. What happens when people start to meditate on consumption? Insights from a qualitative intervention study (see section 9.10.)

This article outlines the empirical results of the general qualitative research on the BiNKA training. It represents an exploratory inquiry into participants' perceptions and experiences of course participation and its relation to their consumer behavior. For the purpose of this research, a total number of 25 semi-structured interviews were conducted with students and employees out of 137 participants who had attended the training[13]. Data analysis was undertaken applying a combined qualitative methods approach, consisting of qualitative content analysis, grounded theory, and discourse analysis. Correspondingly, results are presented in three steps: Firstly, the study takes a somewhat positivist perspective on the interview data, identifying effects experienced by the interviewees as a perceived result of course participation. These effects include mindfulness-related effects (self-awareness, well-being, ethical qualities) and consumption-related effects (both pre-behavioral and behavioral). Secondly, the effects are analyzed from a more critical angle, aiming to discover preconditions, influential factors, and limitations for the effects described by the participants to occur. These factors include personal aspects, such as previous experience with mindfulness practice or general living conditions of the participants, and aspects framing the intervention, such as the time and duration of the training (i.e. 'exposure' to the intervention) or the relation with the teacher and the group. Thirdly, the study looks at the participants' reports from a deconstructive standpoint, leading to a theoretical understanding of the variety of course experiences and their relation to consumer behavior. In a nutshell, this theoretical understanding construes mindfulness practice as a process through which attendees feel reassured about their subjective theories, and, depending on their expectations of what the practice should do, find tools to further pursue their (varying) intentions behind the practice. The overall conclusion of the article is that mindfulness practice is not a miracle cure for promoting SC and might even carry a potential to stabilize unsustainable consumption routines. Nevertheless, the practice could play an important role within ESC, especially when it is complemented with other educational activities. This is where MBI II comes into play.

4.3. MBI II: Reflexive knowledge generation

As described above, MBI II embedded mindfulness practice within a university seminar delivered in two variations during winter term 2016/2017 (90 minutes and 70 minutes per week) to 29 Bachelor and 26 Master students from interdisciplinary backgrounds (see table 7). In this seminar, students dealt with a series of arguments both in favor of and against the consumption of animal-based foods, a topic highly relevant with regard to sustainable consumption (Hedenus et al., 2014). Students were then asked to observe the affective-motivational processes that occurred within them when dealing with

13 Due to significant changes in the course structure, the research on the secondary school student population was separated from the research on university students and employees. This explains the difference between the total number of participants given in table 4 (216 participants including pupils) and the 137 participants mentioned here (students and employees only). Results of the BiNKA training delivered to pupils were published by Böhme et al. (2018).

these arguments. To support this self-observation, a mindfulness meditation practice of 30 minutes to 1 hour (the practice was shorter in the seminar addressing Master students) – led by a professional meditation trainer – was part of each seminar session (Frank & Fischer, 2018). The practices offered a variety of foci, including body scans, breathing observation, and open-monitoring meditations (Lippelt et al., 2014). Students also received instructions for home practice. They documented their observations during the seminars (both related to the confrontation with arguments and to the mindfulness practice) in experience diaries. For the final exam, students were asked to analyze their own diaries in groups of three to six students, applying interpretative-phenomenological analysis or qualitative content analysis (see figure 8; I have later introduced the concept of self-inquiry-based learning and self-experience-based learning to describe this format [compare section 4.4.]). No explicit theoretical input on affective-motivational processes in the context of dealing with arguments was provided to the students. Instead, results of their analyses were entirely based on their own experiences and research.

Table 7: Participant and data information stemming from MBI II.

	Seminar 1	Seminar 2
Duration per week	2 semester hours per week	1,5 semester hours per week
Degree level	Bachelor students	Master students
Number of participants	29	26
Final analyses	5	6

I have described the underlying rationale of the seminar as a process of reflexive knowledge generation (Frank, 2018). Reflexive knowledge is (experientially obtained) knowledge on how one deals with new information. Of special interest in this matter are factors influencing the individual knowledge generation process that usually remain unconscious (see section 3.2.3.). By increasing the awareness of such factors, such as emotions, motivations, or unconscious assumptions, they shall be made transparent and addressed, thereby possibly improving the individual's self-determination in dealing with new information and hence improving the conditions for constructive learning processes. As described above, mindfulness practices might carry a potential to increase the awareness of such factors, which is the reason why they have been embedded in the seminar context. In other words, introducing the mindfulness practices to the seminars was primarily motivated by the intention to make learners reflect upon their reactions when being confronted with new content and the subjective dispositions that led to these reactions. Apart from modest effects on individuals' consumer behavior, this has been the most important limitation identified within the BiNKA study, namely that the training did not stimulate participants' reflections on their own subjective theories, including their intentions and expectations regarding the practice. Furthermore, the BiNKA training did not seem to affect the attendees' tendency to engage with rationalization processes.

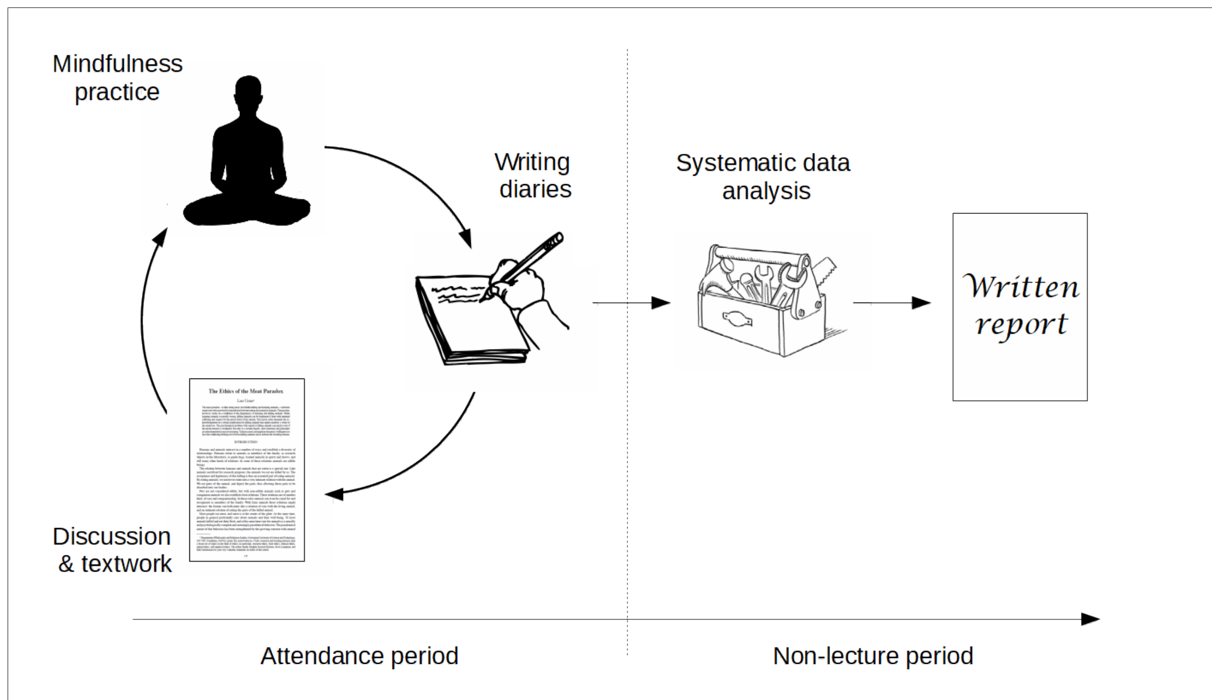


Figure 8: Overview of the learning activities and structure of MBI II.

The following two papers provide empirical evidence on learning outcomes of MBI II. The first paper (section 4.3.1./9.7.) looks at the MBI's potential to stimulate key competencies for sustainable consumption and systematically compares it to the BiNKA training. In this study, only diaries of the students are considered, that is to say it does not take the final self-analysis of the students' experiences into consideration. The second paper (section 4.3.2./9.4.), in contrast, looks at these final analyses, which obviously contain information of the diaries.

4.3.1. How mindfulness training cultivates introspection and competence development for sustainable consumption (see section 9.7.)

This paper pursues a specific research interest: to explore whether the MBIs can cultivate the ability to introspect and thereby stimulate the development of KCSCs. It consists of two studies, namely (study 1) an inquiry of the interview material of the BiNKA study and (study 2) an analysis of the diaries stemming from MBI II. In order to allow for comparability, for this article, only the 11 semi-structured interviews conducted with students who participated in the BiNKA training were considered. As for MBI II, 13 diaries (7 Bachelor students and 6 Master students) of students participating in the seminars were included in the study and made subject to a qualitative content analysis. Since these diaries were written by students over the course of the seminar in order to capture their reactions to the text work and discussions, they only reflect learning outcomes prior to the analytical phase of the seminar.

The overall contribution of the article with regard to the thesis is threefold: Firstly, both studies show a clear intersection between introspection and most of the KCSCs. This suggests that the ability to perceive inner states and processes is an essential component of these key competencies. Secondly, and in line with the previous articles, both studies provide evidence that the MBIs were able to cultivate the participants' ability to introspect. In particular, they show a potential of training introspection through mindfulness practice for competence development, especially the potential to raise awareness for consumption-related intentions, attitudes and values. In the same vein, it helped individuals to improve the perception and reflection of emotional reactions in regard to their consumption behavior (e.g. in social and communicative contexts). However, thirdly, both studies confirm the limitations identified in Frank et al. (2020, submitted; see section 4.2.4./9.10), stating that participants did not show an increased awareness for and reflection of the subjective theories and expectations that underlay their (consumption-related) experiences and – especially in the case of MBI II – reactions to new information. While attendees would, for example, show clear evidence for increased awareness on their emotional reactions when confronted with arguments opposing their opinions, they barely reflected the underlying assumptions, strategies, and patterns they applied to deal with these emotional reactions. Analyzing the dairies of participants of MBI II hence cements the impression obtained from the BiNKA study that a short-term MBI does increase (consumption-related) self-awareness, without however determining how individuals interpret and make use of this awareness. As the following paper illustrates, students are very much capable of such abstractions when faced with the task of analyzing their own diary entries.

4.3.2. Introspektion und Bildung für nachhaltigen Konsum: Ein Lehr-Lern-Format zur systematischen Selbsterforschung in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte – Leuphana Universität Lüneburg (see section 9.4.)

As mentioned before, this article focuses on the students' final reports based on the analysis of their experience diaries. While the diaries merely reflected personal experiences occurring over the course of the seminar (for which the mindfulness practices were supposed to sensitize the students), for these analyses, students gathered in groups of three to six and identified inter-subjective patterns of the subjective seminar experiences by applying scientific analytical methods (qualitative content analysis and interpretative-phenomenological analysis). These documents yield hence insights into the learnings students experienced when going through a combination of embodied subjective experience and theoretically inspired, inter-subjective analysis.

As the paper outlines in greater detail, it seems that this analytical process can stimulate insights into subjective theories underlying as well as strategies and patterns prompted by the experiences of the seminar. In particular, students identified their tendencies to engage in cognitive biases related to their moral standpoint. During the seminar, most students would feel confirmed in the moral position they held before (either defending or rejecting the consumption of animal-based foods) and often experienced emotions reflecting their moral standpoint (e.g. strong negative emotions when being confronted with arguments in favor of meat consumption). After having analyzed and systematically compared their experiences with those of the other seminar participants, however, they demonstrated

stronger awareness of their underlying beliefs and could better distance themselves from the spontaneous reactions reported over the course of the seminar. In this respect, it can be hypothesized that mindfulness practice may only fully develop its reflexive potential if it is embedded within a well-coordinated combination of introspective and analytical phases, as applied in this MBI.

4.4. MBI III: Transforming consumer behaviors

As an interim conclusion, the findings from the research on MBI I indicated that on the one hand, mindfulness practice contributed to an increase of participants' awareness for inner states and processes, including one's values. Furthermore, the training helped attendees to better cope with challenging situations, which led to an improved well-being and ability to take care of themselves. Finally, participants reported the development of ethical qualities, such as empathy or openness. On the other hand, these effects were not necessarily transferred to the domain of sustainable consumption, and behavioral changes remained rare and/or occurred at singular occasions only. Moreover, a more conventional mindfulness practice (like the BiNKA training) did not seem to influence participants' (awareness of their) subjective theories or their tendencies to engage in rationalization processes when talking about their consumer behaviors. This might also be an explanation as to why participants did not show more sustainable consumer choices after course participation, as these rationalization processes can help people legitimizing and hence stabilizing unsustainable consumer patterns (see 3.2.). MBI II indicated that combining introspective and analytical learning activities and relating them to a specific domain of experience (in this case: dealing with arguments against and in favor of the consumption of animal-based foods) could help overcoming the latter shortcoming: As a result of the MBI, participants reported insights into subjective theories underlying as well as strategies and patterns prompted by the experiences of the seminar. In particular, they identified and critically reflected their tendencies to engage in cognitive biases related to their moral standpoint. In theory, this could increase the probability to make more sustainable consumer choices, as the cognitive avoidance strategies are relinquished. And while Frank and Fischer (2018) (section 4.3.2./9.4.) were indeed able to find indications for more sustainable consumer choices among students, this hypothesis was not systematically addressed when studying MBI II, as the related research focused on the MBIs potential for stimulating competencies equipping learners to address and overcome challenges of SC-related learning (in the sense of 3.2.3.).

MBI III was hence designed with the intention to combine the strengths of both MBIs and directly relate both introspective and analytical learning activities to the domain of consumer behavior. As was the case for MBI II, the third MBI was conveyed in forms of a university seminar. In this seminar, students developed transformational projects aiming at changing their personal consumer patterns towards more sustainable ones while putting these projects into practice. Following the concepts of self-inquiry-based learning and experience-based-learning (figure 9, see Frank & Stanszus, 2019 for a detailed description), students systematically observed and analyzed their inner states and processes occurring over the course of their transformation, drawing upon mindfulness practices, introspective data collection and scientific analytical methods to generate an intersubjective understanding of the

process of transforming their consumer behavior. Moreover, seminar attendees were familiarized with a variety of techniques (stemming from coaching, psychotherapy, and other fields) enabling them to deal with and overcome challenges by mobilizing personal resources to pursue their transformational projects. The latter techniques were introduced into the seminar because students participating in MBI II reported increased distress as a result of a deep engagement in self-reflection[14], and we assumed that mindfulness practice alone would not be sufficient to address this distress.

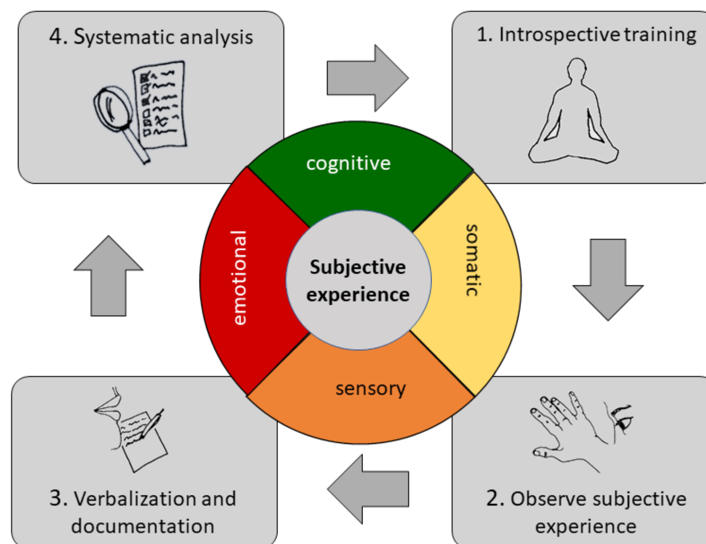


Figure 9: Self-Inquiry-Based and Self-Experience-Based Learning formats can be understood as learning formats in which students (1) engage in introspective training in order to (2) develop an ability to systematically observe subjective experience in its various dimensions. These experiences are then (3) verbalized and documented and finally (4) systematically analyzed based on scientific methods.

From October 2017 to March 2018 and from April 2018 to March 2019, we conducted two versions of the seminar at Leuphana University Lüneburg/Germany entitled Personal Approaches to Sustainable Consumption. The seminar was taught for the first time during winter term 2017/2018, addressing 30 university freshmen from various fields of study (business, ecology, humanities, social science) for the duration of one semester and an attendance time of 3 hours per week. Based on this experience, an extended version of the seminar (one year, 4 hours per week) started in summer term 2018, addressing 20 undergraduate students from the field of environmental sciences in their 4th semester. While all students from the first cohort completed the seminar, three students left the second run after the first semester.

Analogously to MBI II, students wrote diaries over the course of the seminars and analyzed them. In total, eleven research reports resulted from the two seminars. Together with written reflections on the

14 Which was expected and not surprising, given that rationalization and denial strategies are in fact activated in order to soothe such negative emotions.

seminar experience and evaluation results, this data laid the empirical ground for the following study (see table 8).

Table 8: Data material stemming from MBI III.

Type of data material	Seminar I	Seminar II
Research diaries	30	20
Research reports	5 (group size: 5-6 students)	6 (group size: 2-3 students)
Written seminar reflections	5 (included in the research reports)	15 (2 students have been absent during the last session)
Evaluations	Standardized quantitative evaluation with open questions on learning effects and suggestions for improvement (13 students participated)	Qualitative evaluation (15 students participated)

4.4.1. Transforming consumer behavior: Introducing self-inquiry-based and self-experience-based learning for building personal competencies for sustainable consumption (see section 9.6.)

The aim of this article is twofold: For one, it elaborates the concepts of self-inquiry-based learning and self-experience-based learning that constitute the pedagogical basis of MBI II and MBI III. For another, and more important here, it empirically inquires into the potential of MBI III to stimulate personal competencies for sustainable consumption. While facets of the concept have already appeared in the previous studies, this paper is the first explicitly defining and using the term personal competencies. The results provide evidence that the seminar was successful in combining the strengths of MBI I and MBI II. As part of the seminar attendance, students:

- reported an overall improvement of their well-being as a result of increased self-awareness, self-care, self-acceptance and self-compassion
- obtained detailed insights into (affective-motivational) challenges of sustainable consumption and their automatic coping mechanisms to avoid or suppress these challenges
- learned to tolerate these challenges instead of falling into automatic coping mechanisms
- got familiar with techniques and practices that helped them to connect to, nourish and draw on inner resources allowing them to pursue sustainable consumption patterns, including the development of a supportive mindset for this purpose
- developed a stronger intrinsic motivation to consume in a sustainable way and engage in problem-oriented action as a result of value clarification

As a consequence of these learning outcomes, almost all students state that the seminar helped them to initiate and maintain changes of their consumer behaviors throughout the entire seminar duration.

4.5. Conclusion

This thesis was guided by the overall question how personal competencies for sustainable consumption can be defined, observed, and developed within educational settings. Figure 10 summarizes the contribution of each article in chronological order of their publication and relates it to one of the three aspects addressed by the research question. The distinction between minor and major contributions of the articles is not meant to be clear-cut. It rather reflects the central contribution of each article to the question as described in the previous sub-sections. Apart from the empirical articles summarized above, the table also lists those papers (in brackets) that exclusively made contributions to the theoretical foundations of personal competencies for SC (Frank, 2017; Frank, 2018) and their development (Frank, 2018; Frank et al., 2019c).

No.	Article	Definition	Observation	Development
1	(Frank, 2017)	■	□	□
2	Stanszus et al., 2017; section 4.2.1.	□	□	■
3	(Frank, 2018)	▒	□	▒
4	Frank & Fischer, 2018; section 4.3.2.	■	□	▒
5	Stanszus et al., 2019; section 4.2.3.	□	▒	■
6	Frank & Stanszus, 2019; section 4.4.1.	■	■	■
7	Frank et al., 2019a, section 4.3.1.	▒	▒	■
8	Frank et al., 2019b; section 4.2.2.	□	■	▒
9	(Frank et al., 2019c)	□	□	▒
10	Frank et al., 2020, submitted; section 4.2.4	□	▒	■

□ No contribution ▒ Minor contribution ■ Major contribution

Figure 10: Contributions of each article to the three aspects of the research question.

Personal competencies for sustainable consumption have been defined in this thesis as abilities, proficiencies, or skills related to inner states and processes that can be considered necessary or sufficient to engage with SC. These include ethics, self-awareness, emotional resilience, self-care, access to and cultivation of personal resources, access to and cultivation of ethical qualities, and mindsets for sustainability. These competencies directly relate to those challenges individuals face when attempting to consume in a way that corresponds to their sustainability-related intentions (Frank, 2017; Frank & Stanszus, 2019) or engage in SC-related learning activities (Frank, 2018; Frank & Fischer, 2018; Frank & Stanszus, 2019; Frank et al., 2019a). I have demonstrated that the cultivation of (some of) these competencies allows individuals to overcome (some of) these challenges (Frank & Fischer, 2018; Frank & Stanszus, 2019; Frank et al., 2019a, 2019b; Frank et al., 2020, submitted), suggesting that these are genuine competencies for SC.

In terms of observing these competencies, the empirical work undertaken in this thesis has primarily relied on self-reports. While there are certain limitations related to this kind of data (see next section),

I have shown and discussed a variety of methodological considerations and methodical approaches that contribute to making use of this kind of data in order to observe personal competencies. Overall, I have shown that the observation of personal competencies conceived as effects of a learning activity benefits from a combination of different methodological and methodical angles. For one, combining quantitative and qualitative research approaches provides a more nuanced understanding of these effects than one single approach would yield (Stanszus et al., 2019). For another, a pluralistic qualitative methods approach can help overcoming shortcomings that are specifically related to the individual methods while increasing the self-reflexivity of the research (Frank et al., 2019b; Frank et al., 2020, submitted). This is especially important in order to reduce the risk of looking for desired outcomes and misinterpreting statements of the inquired population. This risk can also be diminished by discussing and adjusting interim findings with this population (Frank & Stanszus, 2019). Moreover, I have suggested to let learners analyze their own personal statements applying scientific methods and working in groups (Frank & Fischer, 2018; Frank & Stanszus, 2019). The products of the group analyses represent data based on an intersubjectively shared perspective of learners that goes beyond self-reports on personal experiences and self-estimations of personal competencies.

Concerning the research on developing personal competencies for SC, a particular focus lay on the potential of mindfulness practice to stimulate these competencies. Three Mindfulness-Based Interventions were developed for this purpose: (1) the BiNKA training (MBI I), (2) a seminar format stimulating processes of reflexive knowledge generation (MBI II), and (3) a seminar format in which students pursued transformative projects of their individual consumer behavior (MBI III). The MBIs primarily differed in the additional activities that complemented the mindfulness meditations offered throughout the interventions: MBI I represented the 'purest' mindfulness practice, that is to say an intervention that was strongly based on a well-established mindfulness training (MBSR) and included only little SC-related content. MBI II and MBI III were designed as seminar formats based on the pedagogy of self-inquiry-based learning. They comprised a more intensive confrontation with SC-related content and foresaw research activities focusing on obtaining an intersubjective understanding of the subjective experiences made throughout the participation in the MBIs. MBI III, finally, exclusively embedded (psycho-)therapeutic and coaching techniques into the seminar and directly linked the seminar contents to a concrete behavioral change of attendees' consumer behaviors. As such, the contents of each MBI was systematically built on the structure of the previous MBI, drawing upon the experienced benefits and shortcomings of the various learning activities in order to improve the subsequent intervention with regards to its potential to stimulate personal competencies for SC (see figure 11).

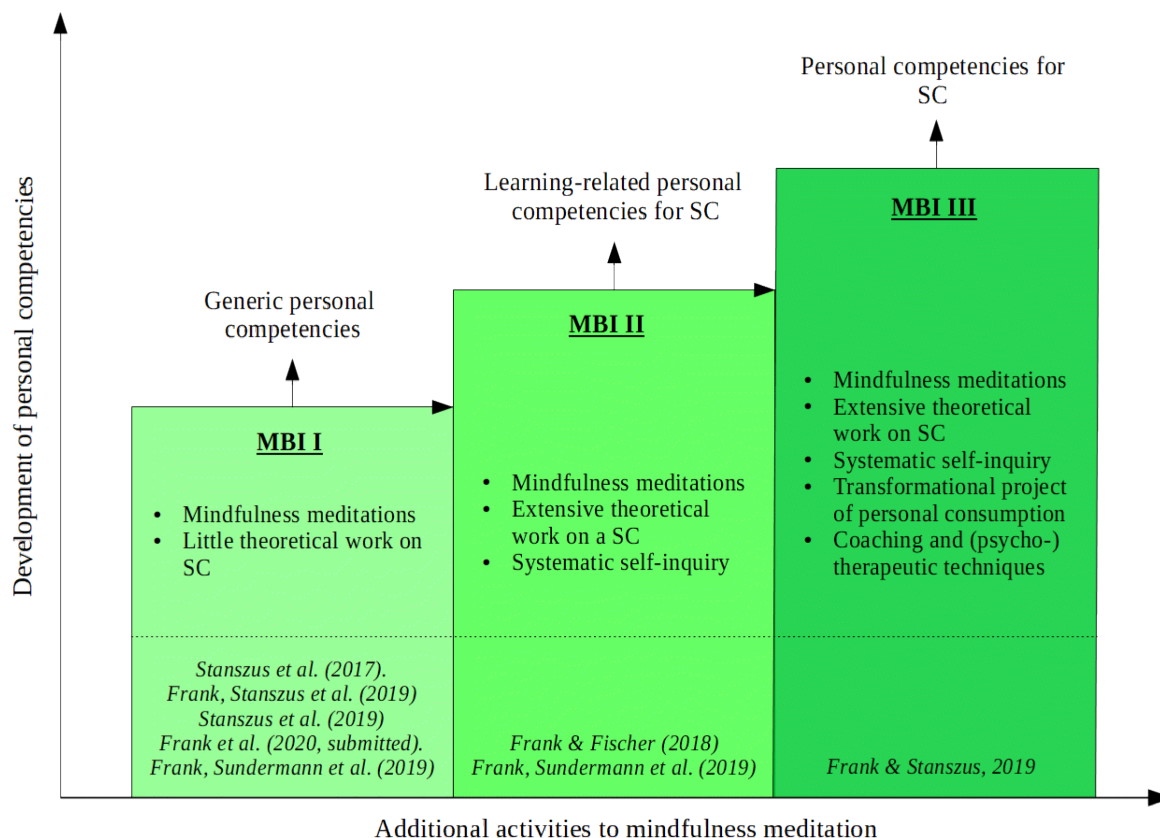


Figure 11: Summary of the empirical results concerning the development of personal competencies for SC. Differences in height of the columns do not reflect a proportional relation to the development of personal competencies.

In terms of the observed effects of the MBIs, MBI I could stimulate the acquisition of personal competencies, such as increased self-awareness (including value clarification), the development of ethical qualities, emotional resilience, and an improvement in participants' ability to take care of themselves. However, these competencies were only rarely transferred to the domain of SC. Furthermore, the practice seemed to support and stabilize individuals regardless of their SC-related intentions. More generally, we did not find evidence that the training sparked critical self-reflections on participants' subjective theories, including intentions and expectations toward the practice, sustainable consumption, or their responsibility with regards to the latter. Moreover, the attendees' tendency to engage in rationalization and denial strategies seemed unaffected, suggesting that the acquired competencies did not expand to the learning domain either.

MBI II showed that a systematic entanglement between mindfulness practice and scientific self-inquiry can help overcoming these shortcomings. While mindfulness practice helped students raising their awareness for ongoing inner states and processes (such as emotions or thought processes) that otherwise remained unconscious, the combination with methodically controlled self-inquiry allowed them to identify and critically reflect on reactive patterns (especially cognitive biases), as well as subjective theories (assumptions, expectations, and so forth) underlying these patterns. However, MBI II could not clarify whether these insights would support students in pursuing more sustainable

consumer choices. In particular, personal communications with students suggested that the mindfulness practice alone did not suffice to build the emotional resilience to endure the distress initiated by the self-reflection.

MBI III, finally, related self-inquiry-based learning to the task of changing one's consumer behavior, thereby directly linking mindfulness practice and scientific inquiry to the domain of SC. Indeed, MBI III seemed to help students to connect to their intrinsic sustainability-related values and strengthen those inner qualities empowering them to engage in problem-oriented strategies instead of applying emotion-oriented coping mechanisms. Moreover, through better being able to connect to the inner states and processes, students were seemingly sensitized for their personal limits, enabling them to better take care of their personal sustainability. According to the students, mindfulness practice was an important part to establish this personal sustainability. Also, there is evidence that students developed mindsets for sustainability in the sense that they had a better understanding as to why the vision of sustainability mattered for them and held stronger beliefs in their ability to make significant changes toward this vision (see figure 12).

Competency	MBI I	MBI II	MBI III
Ethics			
Self-awareness			
Emotional resilience			
Self-care			
Access to and cultivation of personal resources		No data	
Access to and cultivation of ethical qualities			
Mindsets for sustainability		No data	

Not stimulated — Generic stimulation — SC-related stimulation

Figure 12: Stimulation of personal competencies within the MBIs.

Overall, mindfulness practice can play an important role in ESC, insofar as it lays the inner foundation to engage with sustainability-related issues. More precisely, it allows practitioners to experience the relevance of inner states and processes and their influence on actual behaviors, leading to a level of self-awareness that would not be accessible through discursive-intellectual means only. Furthermore, participants experience mindfulness practice as a way to develop ethical qualities and access psychological resources, entailing stronger emotional resilience and improved well-being. Nevertheless, it seems that mindfulness practice by itself is not sufficient to build personal competencies for SC. While it can stimulate generic personal competencies, with the exception of value clarification, individuals do not necessarily apply these competencies within the domain of their

consumption. Furthermore, even though the practice increases individuals' self-awareness for current inner states and processes, practitioners do not seem to become aware of and reflect upon the more latent, personal predispositions out of which the current sensations occur. In order to unleash mindfulness practice's full potential for stimulating personal competencies for SC, it is suggested to (a) complement the practice with methodically controlled self-inquiry and (b) relate it to a specific behavioral task. In this vein, self-inquiry-based and self-experience-based learning turned out to be promising pedagogies for educational settings striving to stimulate the development of personal competencies for SC.

This said, the detailed description of the stimulated competencies (as depicted in figure 12) needs to be interpreted with some precaution, as precise instruments for measuring (the development of) these competencies are not yet available. Instead, results are based on interpretations of participants' self-reports and analyses of their subjective experiences, and the detailed description rooted in interpretations of this data. This is one out a series of other limitations that will be addressed in the next section.

5. Limitations

As is the case for any research, the results of this thesis come along with a series of limitations. The most fundamental of these limitations will be addressed in this section. I will leave out those that only concern single articles of the dissertation, as these are already covered in the respective paper. Instead, I will go through those limitations that concern the thesis as a whole. I will distinguish between three types of limitations, namely (i) general concerns on the theoretical background and interest of the study, (ii) possible methodical and resulting content-related restrictions, and (iii) practical challenges of the approaches discussed in this thesis.

5.1. General limitations

A first potential general criticism concerning the present thesis is that it overestimates the role and possibilities individuals play in regard to a sustainability transformation through changing their consumer choices. This thesis locates itself in the paradigm of informed and reflexive consumer behavior (McGregor, 2005), that is to say that presupposes that it is possible to promote conscious and deliberate choices for more sustainable consumption options among individuals. There are at least two lines of criticism toward this paradigm: For one, it is possible to doubt the *effectiveness* of such an approach, instead promoting strategies that lead to behavioral change without requiring reflection or conscious consent from the consumer, for example through nudging (Thaler & Sunstein, 2008; Lehner et al., 2016); for another, one might question the *responsibility* of individuals to change their consumer behavior for the goal of sustainability (e.g. Heidbrink & Reidel, 2011). Both lines of criticism emphasize the importance of structure, politics, and power as the predominant causes of unsustainable consumer patterns (Fuchs et al., 2016; Anantharaman, 2018), and the focus on personal competencies for SC might suggest that I neglect these factors in this thesis.

I do not conceive the development of personal competencies as the one and only approach to address the pressing issue of unsustainable behavior. Promoting informed and reflexive consumer behaviors is surely not the only way to initiate changes in this domain, and it probably requires a combination of approaches on the political, economic, and individual level to realize a transition toward sustainable consumption. Nevertheless, I do think that the individual level is a critical part on this journey. In the words of Karen O'Brien:

> *"Directly recognizing and engaging people as agents of change can drastically speed up [...] transformation processes because everyone is part of a system, and everyone has a sphere of influence. Activating conscious human agency that is critically reflective of individual and shared assumptions, beliefs and paradigms is a powerful way to shift norms and institutions in ways that support the roadmaps and pathways consistent with the Paris Agreement"* (O'Brien, 2018, p. 158).

Clearly, the intention behind this perspective is not to take away the responsibility of social, political, and economic actors for the sustainability transition and redistribute it among individuals; instead,

building personal competencies is meant to enable them to act in accordance with their deepest values despite the challenges they face. In the sense of the competency approach outlined in section 3.1., this capability is needed for their role as consumers, citizens, and professional functions.

Related to this is a second line of critique, directed to the use of a competency approach as a reference point for this thesis. Competency-based approaches as a form of outcomes-based education have been criticized for being managerial, technical-reductionist and behavioristic in nature (Hyland, 1997). This critique is also reflected by scholars arguing for educational, indeterministic and open approaches to defining the objectives of learning in (H)ESD (Higher Education for Sustainable Development) (e.g. Jickling & Spork, 1998). I concur with the rejection of narrowly defined behavioral or cognitive outcomes as expressed in this way. While the competency approach used in this thesis can be seen to stand in the tradition of outcomes-based education, it provides a middle ground, as it does not foreclose outcomes on a very specific level, but rather identifies domains of learning that are empowering and conducive to sustainable change. This is particularly the case for the development of personal competencies: Self-related competencies have been attacked in the literature as having emerged from and being associated with neo-liberal ideas of productivity, optimization, and self-discipline, which are instrumentalized for the purpose of professional efficacy and economic growth (e.g. Lerch, 2016). While I acknowledge this risk, I conceive the development of personal competencies as a potential source for resistance against and emancipation from such ideals. Instead, it is meant to empower individuals “to try out new things, attribute a different importance to one’s life and professional activity, and successfully balance between both (or, in fact, decide not to)” (Lerch, 2016, p. 245). In this sense, personal competencies can allow individuals to conduct their lives in a self-determined and autonomous way, implying the possibility of distancing oneself and resisting prevailing societal careers and practices when preferred. In particular, personal competencies are meant to enable individuals to relate to the environmental, social, and personal world, connect to one’s needs and deepest values, and live a life in accordance with the latter.

A third concern can be expressed regarding the claim that the development of personal competencies should play a pivotal role as learning outcomes of ESC. As discussed in detail in section 3.2.1., there have been multiple attempts to describe competencies for SD in general and SC in particular. In contrast to the established competency frameworks, personal competencies emphasize the importance affective-motivational learning outcomes instead of discursive-intellectual ones. Analogously to the first criticism, I do not argue that the development of personal competencies is the only desirable learning outcome of ESC. Neither do I defend the position that thinking and intellectual inquiry is irrelevant in this context. Instead, I intended to illustrate that the personal dimension (especially affective-motivational aspects) of consumption (a) is strongly neglected so far within ESC, which is particularly problematic because (b) it is of particular importance for understanding unsustainable consumption patterns and often precedes discursive-intellectual efforts. In other words. there is a need to take the personal dimension within ESC discourse and practice more strongly into consideration, and this thesis is meant to be a contribution to this endeavor. Thus, the focus on personal competencies should enrich and inspire the existing ESC discourse and practice. I am not arguing for an exclusive focus on personal competencies within ESC, nor do I suggest to replace existing approaches by self-reflexive learning activities (as a means to stimulate the personal competencies) only. Instead, I think

that self-reflexive learning activities, such as those proposed here, can be embedded into and combined with existing learning approaches. It is my hypothesis that a systematic integration of such learning activities carries a potential to stimulate personal competencies, which in turn contribute to accomplish both instrumental and emancipatory educational purposes of ESC.

The fourth line of criticism shows some similarities with the aforementioned points, yet emerges out of a more antithetical theoretical point of view, according to which the pedagogical approach elaborated in this thesis should not be part of education (particularly higher education) at all. For example Ecclestone and Hayes (2009) have extensively criticized efforts to address the personal, affective-motivational dimension within education, calling it "a powerful instrument of social engineering and control because it encourages people to come to terms with being a feeble, vulnerable human subject and then allow the state to coach the appropriate dispositions and attitudes of the emotionally well citizen" (Ecclestone & Hayes, 2009, p. 161). Instead, education should be rooted in the agenda of radical humanism, that is to say "the ability of humans to transform the world by making scientific and social progress through reason. We mean reason in all its aspects, the ability to think, argue, plan, design, create and manufacture" (ibid., p. 162). Even though I generally agree with the dangers of personal approaches as instruments of social engineering, I have already mentioned that developing personal competencies as described here follows exactly the opposite idea, namely to empower individuals to make self-determined and autonomous life decisions that carry the potential to "transform the world". And while it might only be a fine line separating both outcomes, this thesis has extensively elaborated on what can be done to build personal competencies in the second sense. Moreover, the demand to root education in the ideals of progress through reason raises doubts, and this for three reasons: Firstly, it appears to be ignorant to the historical emergence of the current sustainability-related problems, as these did not primarily emerge despite, but because of the pursuit of progress through reason (e.g. Beck, 1986; Orr, 1994). More generally, for example Feyerabend (2002) has illustrated how the ideals of science, progress, and reason have served as instruments of power and 'social engineering' in human history. Simply continuing to promote the same ideals that have largely contributed to the emergence of the current situation hence sounds not very convincing to me. Secondly, an important argument for the development of personal competencies is precisely that prevailing ESC approaches have overemphasized discursive-intellectual approaches, and they have not been too successful in initiating social change. Thirdly, separating the ability to reason from affective-motivational education disregards evidence indicating how seemingly rational processes are influenced, if not determined by affective-motivational factors (see section 3.2.3.). The approach within the framework of this dissertation, in contrast, gives examples on how these intellectual and affective-motivational faculties can be synthesized.

5.2. Methodical and content-related limitations

Generally speaking, the inquiry done and insights gained throughout this thesis are connected to particular methodologies and paradigms that each have their blind spots and assumptions, which can be contested and limit the scope of the conclusions drawn. While these general methodological

reflections are useful, I will focus on nine (out of probably more) aspects that are uniquely relevant for this thesis.

First, the comparability of the research conducted on the different MBIs can be questioned. As becomes clear when reading the empirical articles, the thesis is composed of different inquiries, partly following varying research questions and designs. Indeed, these variations influence the data material and thereby the results in such a way that their direct comparability is restricted. Acknowledging this limitation, it has not been in the interest of the thesis to conduct a comparative study on the three MBIs, but explore ways to build personal competencies for SC. In other words, the object of inquiry were not the variations of effects occurring throughout the MBIs as such. Instead, I studied and compared these interventions with regard to what can be learned about the possibility of building personal competencies for sustainable consumption. This said, the thesis was guided by a practical interest, namely to develop pedagogical approaches aiming at stimulating the development of personal competencies. Consequently, the research procedure unfolded in iterative steps, in which interim results of one MBI were used to design the subsequent MBI, so that the research questions and data collection methods adapted to the obtained knowledge and prevailing circumstances. As described in section 4, such a procedure is very common for qualitative research and even characteristic for entire research traditions, such as (educational) action research (e.g. Baumfield et al., 2013). This research approach comes with its own limitation. However, it should not be interpreted as a qualitative shortcoming, but an inevitable result of the priorities defined for this research.

Second, the MBIs have not been compared to other, more conventional ESC interventions. Therefore, it cannot be ruled out that other ESC programs would stimulate similar learning effects. Put differently, the potential of other pedagogical formats to stimulate personal competencies might have simply remained unrecognized because scholars have not yet looked at personal competencies as relevant learning outcomes so far (compare Lozano et al., 2017; Sahakian & Seyfang, 2018). While especially in the case of MBI III, students described the seminar attendance as a unique experience of their higher education career and mention learning effects that went beyond the scope of their academic discipline, the studies would benefit from a comparison to other interventions and pedagogical formats with regard to their potential to develop personal competencies.

Third, and strongly related to the previous point, it is unclear which aspect of which intervention precisely led to which effect. This lack of specificity is shared with the majority of current MBI studies (van Dam et al., 2018): MBIs do not only include mindfulness instructions, but also comprise a variety of non-meditative aspects, such as keeping diaries, in-class discussions of meditation experiences and verbal input from the teachers, including expressions of attitudes, values, and support. In the case of MBI II and MBI III, additional elements were theoretical inputs, discussions, and the self-inquiry process (in the case of MBI III, the individual pursuit of transformational projects of their consumer behavior, as well as techniques from coaching and psychotherapy also have to be mentioned here). Given this combination of different elements, it is likely that numerous factors have reciprocally influenced each other and shaped the way participants made sense of singular experiences. Thus, effects cannot clearly be attributed to one element (e.g. the meditation) alone, but need to be seen as a result of the MBI as a whole. From a theoretico-analytical perspective, it might indeed be valuable to

clearly relate single learning activities to specific effects. Alternatively, future research could also examine the potential of combined learning activities and systematically compare such programs to more isolated approaches (only mindfulness or only theoretical work), instead of isolating single learning activities and effects.

Fourth, the population that has been addressed by the MBIs is restricted to a well-educated social milieu. While the BiNKA study included employees, most of them held a university degree. MBI II and MBI III exclusively targeted students from Leuphana University Lüneburg (although partly from different disciplines and stages of their programs). The Leuphana University is in itself a peculiar institution of higher education, as it is officially guided by the vision of sustainability and offers related study programs attracting a student body that shows sympathy for this vision. In addition, MBI II and MBI III have been offered within optional compulsory modules, making the seminars prone to self-selection processes, in which only those students partook that have had an affinity to the related contents beforehand. This said, as mentioned previously in this thesis, the question of what pedagogical approaches can best be applied for enhancing the achievement of competencies remains unanswered (Shephard et al., 2019), and this is particularly the case for personal competencies. Furthermore, the role of mindfulness practice to stimulate SC-related competency acquisition is barely investigated (Frank et al., 2019a, 2019b). The thesis understands itself as an exploratory contribution to these gaps, on which more generalizable research on a broader population can build upon.

Fifth, the data material analyzed within the thesis is primarily rooted in self-reports. Self-reports on subjective experience have been repeatedly criticized for being unreliable (e.g. Johansson et al., 2005; Haybron, 2007). Although this unreliability can be partly explained as a problem of naive introspection, the MBIs have been explicitly tailored to train participants' ability to introspect, and some evidence suggests that this was indeed successful (Frank et al., 2019a), it remains still contestable that the self-reports consulted for this thesis are in fact more reliable than others. I will give two reasons why I consider this thesis a good example of how to constructively work with self-reports. Firstly, the reports from participants of MBI I were made subject to an analysis of various methodological angles (see Frank et al., 2019b). Interpreting self-reports through these different angles prevented a naive acceptance of what the attendees reported, instead allowing for a more nuanced understanding of what the individual statements actually revealed and what they did not. Learning from these insights, secondly, the studies related to MBI II and MBI III were not based on direct self-reports. Instead, the self-inquiry undertaken by students within MBI II and MBI III foresaw a methodically controlled analysis of their self-reported data, leading to the identification of inter-subjective patterns within their personal experience diaries. In opposition to the interview data of MBI I, the results illustrate that the participants were very well able to become aware of cognitive biases and other blind spots that have affected the writing of the diaries. Thus, it seems that through this additional analytical step, this source of introspective unreliability can be addressed. In conclusion, the thesis exemplifies how self-reports can be used for qualitative research without naively taken for granted what individuals say about their subjective experience. Nevertheless, complementary second-person (for example observations from family members, friends, …) and third-person data (neurological, behavior observation, ...) would surely advance the research on personal competencies.

Sixth, the self-inquiry within MBI II and MBI III took place within a university context and culminated in an exam. The pressure to succeed might have influenced the way students wrote their diaries and analyzed their data in such a way that it did not reflect their genuine MBI experience. I acknowledge that this is a valid objection. However, I implemented precautionary measures to counteract this potential problem. More precisely, all findings were shared and redefined in cooperation with the students after the completion of their coursework and prior to publication of the results (see Frank & Stanszus, 2019). Through these measures, students had the occasion to confirm or correct the experiences described in their self-inquiries, although it cannot be entirely ruled out that their reported experiences still differed from what they had actually experienced. Second-person and third-person data could also be useful here to circumvent this problem.

Seventh, it must be said that I served both as a researcher and lecturer within MBI II and MBI III. This double role comes along with a host of general methodological challenges that are thoroughly discussed within educational action research (e.g. Baumfield et al., 2013). I primarily mention this point here to admit a potential positive bias in the analysis, as I had an interest that the MBIs would indeed stimulate the intended learning outcomes and would be embraced by the students. I have combined three strategies counteracting this potential bias, two of which I have already mentioned: Firstly, the research done upon MBI II and MBI III have been preceded by the inquiry of MBI I, which had yielded important insights into how to avoid a naive interpretation of students' reports on their course experience. Secondly, the aforementioned feedback loop has to be mentioned again, in which students had the occasion to comment on my interpretation of their experiences provided an important opportunity to adjust my analyses. Thirdly, I intended to avoid the potential bias through critical reflections on the results with my co-authors and my first supervisor.

Eight, and this limitation has been identified for all the MBIs, it remains unclear to what extent the findings provided are dependent on the respective teachers offering the MBIs. Concerning the BiNKA training, participants' reports indicated that the training experience had indeed be sensitive to the trainer (Frank et al., 2020, submitted). It seems unlikely that the self-inquiry-based and self-experience-based pedagogies applied in MBI II and MBI III do not show this sensitivity. Studies inquiring the same seminar conducted by different teaching staff might shed light on this blind spot.

Ninth, and finally, the thesis does not provide insights into actual long-term effects of any of the MBIs. As a consequence, it remains an open question whether the participants could indeed acquire lasting competencies and – especially in the case of MBI III – maintained their initiated changes on a long-term basis. Follow-up studies might be useful to answer these questions.

5.3. Practical limitations

Concluding the limitations section, it is important to address some challenges that are related to using the self-reflexive learning activities suggested in this thesis. First and foremost, the pedagogical approaches developed in the framework of the thesis require a strong personal engagement and openness toward unconventional learning formats from both participants and teaching staff. There

must be an intrinsic willingness to engage with self-inquiry and self-experience. A consequence of this learning approach is that boundaries between one's private and academic/professional life become diffused, and participants need to be ready for this.

A second issue is that mindfulness practice and the self-inquiry process can bring to the fore deeper psychological conflicts of the participants (and potentially the teaching staff). There is a growing body of research pointing out potential challenges and contraindications for mindfulness practice, depending on the preexisting conditions of practitioners (e.g. Lindahl et al., 2016; Lutkajtis, 2018). According to this research, mindfulness practice can be contraindicative or must at least be adapted for certain populations, such as people suffering from post-traumatic stress disorders or depression, as it risks worsening the conditions of these people. This risk also needs to be taken seriously when working with self-reflexive learning activities and self-inquiry processes. One student of MBI III, for example, unexpectedly faced an eating disorder when choosing to change her eating behavior. While in this particular case, this confrontation turned out to be positive, as the student was able to persevere and in the course of the seminar experienced the motivation to address this problem she had previously ignored for many years, incidences like this one can easily move beyond the scope of what can meaningfully be handled within the framework of an educational setting. Either way, it is important to design this setting in such a way that it provides a safe space for all participants, one in which sensitive issues can emerge while learners are also informed about the contents of the learning activities and are invited to withdraw whenever they want to. In addition, it is important to emphasize that such educational approaches are not meant to replace (psycho-)therapeutic interventions and support.

Nevertheless, the aforementioned aspect underlines that the pedagogical approaches suggested in this thesis come along with requirements from the teaching staff that go beyond disciplinary expertise. Apart from personal experience with introspective methods and self-inquiry, this implies the capability and willingness to deal with emotional processes emerging throughout the seminar and to build authentic relations with students that surpasses professional roles.

6. Practical implications and research outlook

The thesis is based on the observation that ESC, understood as the totality of all actions by which people seek to promote learners' SC competencies, has so far failed to enable individuals to acquire the necessary competencies to engage in more sustainable consumer choices. As part of the reason for this, I have argued that existing educational efforts have mostly neglected the systematic development of personal competencies for sustainable consumption. Over the last years, mindfulness practice has been increasingly discussed as a potential means to close this gap. The aim of the thesis was to explore this potential as well as to design and empirically inquire into educational approaches based on mindfulness practice that aimed to stimulate personal competencies. The presented findings have a couple of practical implications:

- Self-inquiry-based and self-experience-based learning seem to carry a potential to stimulate personal competencies for SC. Frank and Stanszus (2019) have also provided evidence that these competencies epitomize genuine competencies in the sense that they actually enable individuals to act more aligned with their intention to consume sustainably and deal with new information in a more open, reflexive way. This suggests to consider the application of these pedagogies more systematically within ESC contexts in order to stimulate the development of personal competencies.
- Mindfulness practice plays an important role in this regard, as it sensitizes for inner states and processes, can provide a means for building emotional resilience and well-being, and stimulates the development of ethical qualities. While it does not seem sufficient on its own to build consumption-related competencies, the findings outlined above give reasons to complement existing learning activities and curricula with the practice and explicitly relate it to sustainability-related contents.
- Generally speaking, the thesis yields ideas on how the discursive-intellectual focus of ESC can be enriched by learning activities aiming to develop embodied knowledge and affective-motivational competencies. As I have explained in detail here, such learning outcomes are both relevant for mere learning purposes and sustainability-oriented behavior alike.

Overall, the thesis makes a novel contribution to the field of competency-based ESC by suggesting personal competencies for sustainable consumption as important and desirable learning outcomes of ESC practices. Furthermore, it provides specific pedagogies and learning activities in order to achieve these learning outcomes. As such, the thesis answers to general calls from ESD scholars to take the inner, affective-motivational dimension of individuals into consideration and makes a first suggestion as to how this can be systematically achieved.

This said, it is important to keep in mind that the investigation provided is primarily exploratory, and more research and practical experimentation will be needed to corroborate my findings, as well as to elaborate and critically reflect upon the pedagogical approaches I suggested. First and foremost, it will be necessary to explore their appropriateness for other populations from different socio-economic backgrounds. In particular, this would help understanding more general conditions for, and limitations

of the approaches elaborated here. Inextricably linked to this line of inquiry is the identification of competencies that teachers need in order to offer the pedagogical approaches suggested here. Also, further research would benefit from studies comparing the personal approaches with other, more traditional ESC formats and their potential to stimulate the acquisition of personal competencies. This could also imply an inquiry into the role of specific learning activities within these approaches in order to better understand the causality underlying observed learning effects. Furthermore, future research should consider follow-up comparisons that look at the long-term effects of the respective learning approaches. In general, more research is needed that is dedicated toward personal competencies and how they can be empirically inquired. In particular, further research would benefit from quantitative operationalizations and inter-subjectively verifiable indicators for these competencies. Finally, it would be interesting to inquire the pedagogical approaches developed here in different contexts and forms: For example, self-inquiry-based and self-experience-based learning could be equally relevant for other subjects, such as medicine, nutrition, or psychology, in which learners can directly relate and apply theoretical content to their own lives. In addition to isolated courses, it might also be possible to develop entire curricula based on these pedagogical approaches. In light of the inexorably intensifying social and environmental threats humanity is facing, it is worth asking the question whether such a reorientation in the formal educational system could be part of the "certain kind [of education], that will save us" (Orr, 1994, p. 8).

7. Personal reflections

Writing a PhD thesis on self-reflexive learning activities without including a section reflecting on my own learning process while working on the thesis would be, at best, inconsistent, and, at worst, mean lacking an integral part of the whole picture. To my taste, such a reflection is of great value both for my readers and myself: Not only is it an opportunity to make my very personal motivations behind my PhD project transparent, but it also represents an occasion to reflect upon my personal learning experience that resulted from working on the project. I consider both aspects indispensable for fully apprehending the work I undertook over the past years, as it is the personal approach to education (for sustainable consumption) that lies at its heart. The following reflections are partly inspired by autobiographical research (e.g. Taylor & Settlemaier, 2003) and self-reflexive methodology (Berger, 2015; Alvesson & Sköldberg, 2017), although they do not claim to follow a systematic analysis of how my personal background influenced the epistemological approach to my research question, the way I constructed and looked at this question, or how I interpreted my findings. More generally, this last section is not meant to continue the proper scientific work of the dissertation, but rather complements it by adding a more personal dimension.

Looking for experiences in my biography that retrospectively seem to have paved the way for this thesis, four experiences are especially worth mentioning.

Firstly, my personal school and university career has been characterized by a lot of disappointment. For me, the way most of the content was addressed was simply too theoretical. While I often saw the general relevance of these contents, I did not understand how the reading and writing on these contents would help me facing the difficulties that were expressed in and my emotional distress that were caused by these contents. For example, being confronted with Pierre Bourdieu's (2015) theory about habitus and social distinction appeared to be highly relevant for understanding human behavior, including my own. It explained much about how social inequalities emerged and were reproduced, yet it did not give me any information about how I could influence what was happening, neither on a personal nor on a societal level. To me, it seemed that for many of my fellow students the situation was even worse, as they did not personally relate to such content at all. What was more, most of my teachers and lecturers did not show a strong personal involvement in these matters either. Indeed, they were experts in talking, analyzing, summarizing, and writing about these topics, but did not provide orientations as to how these theories could make a practical difference for one's life. In other words, the vast majority of my teachers and lecturers did not inspire me in terms of living a good life, and even though they were dealing with intriguing content, they did not seem to walk their talk.

Secondly, in 2013, I experienced a deep existential crisis. It was literally existential, because it engaged me with deep questions about the meaning and origin of life, as well as the foundations of what one usually experiences as the inner and outer reality. It would go beyond the scope of this section to reconstruct the process I went through, yet the insights I obtained are worth sharing here: While my relation to the world had been (unconsciously) strongly dominated by reason and intellectual inquiry beforehand, I now started to doubt that these faculties were meant to give me a

meaningful orientation in life. I got the impression (and personally experienced) that my thoughts were literally the tale of affective-motivational processes, which in turn were the result of a deeper skeptical and distrusting relation to life in general. For example, my intellectual inquiry about the meaning of life was motivated by the fear of living an (objectively) meaningless life; accepting answers on the origin of life was motivated by the fear of not knowing and, maybe, even never being able to know at all. I realized that any further engagement in intellectual inquiry would provide me with illusionary remedies soothing my existential discomfort, and it became my task to cultivate a relation to my existence that was built in deep trust, despite, or maybe because of the insight that my intellectual faculties would not provide me any reason for that. As a result, I discovered that my intuition, my emotions, my senses, and my bodily sensations were equally, if not more important faculties for living a good life, yet I had neglected their cultivation and had not listened to them sufficiently in the past. The crisis represented a turning point in this regard.

Thirdly, it was my experience with yoga practice (more precisely, Iyengar yoga) that had a strong impact on my academic orientation. I had got in touch with Iyengar yoga in 2009, and it quickly became an important part of my daily life. In contrast to my school and university experiences, within the yoga community, I encountered many people that deeply inspired me on a personal level. More importantly, however, the practice provided a form of learning I really experienced as holistic, that is to say that it integrated the senses, the body, affective-motivational processes, and analytical thinking. The practice was of double benefit to me: For one, it allowed me to engage with and cultivate those non-intellectual faculties I described in the previous paragraph; for another, it taught me methods that enabled me to systematically address and solve specific problems. For example: Initially I had started to practice yoga due to back problems. Not only did the practice soothe these, but I consciously discovered the origins of these problems and learned how I could avoid or at least counteract them. More generally, the practice taught me the mindset and hands-on methods that enabled me to engage in tangible transformation processes, which I could partly transfer to very different areas of my life.

Fourthly, there has been a very concrete encounter with one of my fellow students during my (second) Master studies at Cambridge University that strongly inspired my PhD project. During this encounter, we had a debate on the appropriateness of a vegetarian diet for a healthy living. Having been a vegan for more than twelve years back then, I defended the position that a vegetarian diet was perfectly appropriate from a health perspective. Backing up my position, I had written my first Master thesis on the so-called meat paradox, that is the phenomenon that people consume animal flesh, although they hold the ethical position whereby it is morally wrong to do so (Frank, 2017). In a nutshell, I concluded from my empirical research that people representing the meat paradox believed in accounts justifying their eating behavior (e.g. that meat was necessary for health reasons) because they *wanted* to believe in them. I was deeply stunned when my fellow student defended exactly the opposite point of view and claimed that I believed that vegetarianism was a healthy diet only because I wanted it to be true. It is worth mentioning that he held a Bachelor's degree in medicine, so obviously, he was not totally uninformed about this matter. Anyway, this encounter made me wonder how it was possible that two people held totally opposing positions that were both corroborated by evidence. I had the feeling that it was not merely a question of the quality or interpretation of this evidence, but that there was something more fundamental to understand behind the encounter. Therefore, I decided to inquire into

what I had experienced. As the reader might have already noticed, this inquiry became an essential part of my PhD dissertation.

While the encounter just described strongly shaped the question of my PhD project, the other three experiences, combined with a deep intention to make a meaningful contribution to the world and my conviction that individual consumption would be an adequate field to make this contribution[15], engendered the specific approach I chose to address this question. From the very beginning, it was clear to me that I did not want to produce a merely theoretical work on my topic. I was looking for a project that had a transformative potential both for myself and for others. This implied that I did not want to treat research participants as mere objects of my research, but I wanted to actively involve them in finding answers to what I was inquiring (the reader might be reminded of the three research interests I described in section 4.1. as research as evidence, research as co-learning, and research as activism). In search of practicable ways to undertake my research while doing justice to my other interests, offering educational programs seemed to be the most promising approach. Given my personal experience with school and university education and its contrast to my immersion into yoga, it became clear to me that these educational programs should deliver more than just another intellectual input. I wanted to provide holistic learning possibilities to students that allowed for personal involvement and could be of direct practical relevance for their lives. I knew that this would require the application of learning activities that went beyond discursive exchange, reading, and writing. Because of my yoga practice, I knew that mindfulness practice could be such an activity, so that I decided to build my educational programs around this practice. As it seems, I have been to the right time at the right place with my idea, as mindfulness practice (as an educational approach within ESD) was receiving increasing attention in academia and my general educational approach was hence well corroborated within the scholarly literature. In particular, the BiNKA study was launched in 2015, which perfectly fitted to my PhD interests. I consider it a stroke of fate that I was able to join the project in 2016 and could pursue my research at Leuphana university, where I found the ideal conditions to realize my PhD project.

Looking back at the entire realization process, I have accomplished at least one of my intentions: For me, working on my project turned out to be a personal transformation. Unsurprisingly, it is clearly not the theoretico-intellectual understanding that propelled this transformation, but the holistic, personal engagement my chosen path of inquiry demanded. I feel that three learnings have been of particular relevance both for my private and professional life, which I can causally relate to my PhD.

Firstly, the work on my dissertation made me experience the importance of the ‘inner posture’ when it comes to mindfulness and sustainable consumption. Retrospectively, I tend to say that my own history of mindfulness practice and consumption has been imprinted by discipline and willpower. Generally speaking, discipline and willpower are valuable qualities in pursuit of these fields of action: Concerning the first, it enables one to maintain a regular practice despite a temporal lack of motivation or other perceived hindrances; regarding the latter, discipline and willpower help overcoming the

15 The readers of the dissertation might judge for themselves whether and to what extent I realized this intention through my work.

attraction of habit and convenience that often blur the consequences of one's consumptive actions. However, engaging in mindfulness practice and sustainable consumption through discipline and willpower alone always implies the exertion of force on oneself, expressing a self-relation characterized by non-acceptance and self-improvement. As I came to understand throughout my dissertation, mindfulness practice primarily aims at cultivating a relation to oneself that is based on qualities such as acceptance, self-compassion, and benevolence. These qualities are crucial to confront one's inner states and processes. Without such qualities, practicing mindfulness and introspection more generally risks having detrimental effects on practitioners, or at least might create resistances that are not conducive to the exploration of one's inner world. Analogously, dealing with one's consumptive patterns without acceptance, self-compassion, and benevolence risks sparking the experience of guilt and makes it difficult to connect to those needs that initiate the consumption in the first place. In the same way mindfulness practice without the appropriate inner posture is not mindfulness practice, consumption that is not accompanied by the described inner qualities cannot be considered sustainable, as it does not address the personal needs that underlie one's actions. This insight has been equally important for my personal and professional life. I am particularly thankful to the exchange with Paul Grossman in this regard, who did not get tired to emphasize the importance of the ethical qualities within the BiNKA project.

Secondly, working on my PhD project helped me building peaceful and trustworthy relationships. Prior to my project, I was of the opinion that conflicts could be solved by talking about them, and that it was a question of providing sufficient information to solve conflicts. While I do not say that talking is unimportant, I now think that conflicts are primarily affective-motivational issues, and they need to be addressed at this level. The starting point is to become self-aware of one's personal inner states and processes: What is it that drives me in a conflict? Do I feel hurt? Do I hold expectations toward another person I expect her to fulfill? Do I want to be 'right' about something? Related to this are my underlying assumptions about the other person and my inner posture toward them: For example, do I approach them with distrust and allege bad intentions? Or do I assume that they might have reasons for their actions and have tried their best? Making these inner states and processes transparent has a tremendous potential to deepen my social relationships. Seeing the importance of affective-motivational processes also allows me to react to another person in a different way: Earlier in my life, my reaction to people approaching me in a bad mood would be harsh. I would feel, for example, unjustly attacked or had the impression that the person projected her issue onto me. This would often lead to meaningless discussions the aim of which was to argumentatively 'defeat' my counterpart. Now, much more often I am able to see the inner states and processes behind the actions of the other person and address them on this level. For example, instead of harshly reacting to my girlfriend when she is in a bad mood, I might just hug her and ask her what she needs. There is still much more to learn for me in this regard, yet my PhD project made me sensitive to these dimensions and made me understand the relevance of non-violent communication (Rosenberg, 2015) as a means to foster social sustainability.

Thirdly - and this directly followed from the previous learnings - I came to the conclusion that teaching is primarily about building personal relations, not about conveying content or stimulating the acquisition of technical skills or expertise. In my experience, students will learn much better if a

personal relation between them and the teacher is established. An essential part of building personal relations with students is to approach them with the ‘right’ inner posture, that is to say a posture characterized by openness, compassion, trust, and benevolence. Offering students such a posture will also support students developing these qualities, which makes it more likely that they can personally relate to the contents of the learning activity and therefore intensify their engagement with the topic. This has been particularly important for the approaches I pursued within the framework of my PhD project, as the personal engagement was at the heart of these learning activities. Another important part for building these personal relations is to walk one’s talk and be a role model for students. For the sake of my own credibility, I should only teach those things I own and embody, and only expect from students what I myself deliver. In particular, I should always grant students a credit of trust, making them feel accepted and respected for what they are and what they currently need. I have made the experience that students will recognize and appreciate such a posture and will be more willing to engage with the specific learning contents. I am convinced that such a posture will always be rewarded: To me, I have been deeply touched by what students reported about their experiences in some of the seminars described above and the value it had to their personal lives. I consider it one of the highest values of education to make a meaningful contribution to another person’s life. In order to do this, I think that establishing a personal relation to students is the first step.

The academic work, so I think, is not opposed to the personal dimension I repeat to emphasize. However, I think that is crucial to reconsider its actual value for our lives. Theoretical thinking and analytical inquiry are but one faculty of human beings and have no prerogative in relation to the other faculties. In my opinion, their value primarily lies in their potential to find ways to modestly trespass the boundaries of our subjectivity and mirror ourselves, thereby making visible the numerous distortions and biases we are all prone to. Nevertheless, we will not see anything meaningful in this mirror unless we realize that scientific inquiry always reflects something about ourselves.

Overall, the insights I gained throughout the realization of my PhD dissertation carry two implication for me: For one, I will continue to dedicate my professional life to the development and inquiry of personal approaches toward education in general and ESD/ESC in particular. It is my aim to contribute to a more holistic understanding and practice of learning and teaching and transform (parts of) the educational system in such a way that it conceives learners not only as specialists and future professionals, but as human beings with a potential and willingness to grow. This said, the only way to credibly propel such a transformation is to engage with my personal development first and foremost. As a famous quote of Mahatma Gandhi says:

> *“We but mirror the world. All the tendencies present in the outer world are to be found in the world of our body. If we could change ourselves, the tendencies in the world would also change. As a man changes his own nature, so does the attitude of the world change towards him.”*

I am of the opinion that in order to understand the current unsustainability, we have to direct our views to the inside. We carry all the sources for unsustainability within ourselves. In the same way a doctor infected by a contagious disease will not be able to cure a patient from this disease, because he will reinfect him, we will continue to spread unsustainability through our actions, unless we remove the roots of unsustainability within ourselves. As a consequence, I consider it my primary responsibility to

walk my talk and find ways to transform myself toward a person who is able to live a sustainable development.

8. Bibliography

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9. Appendix: Full papers

9.1. Warum wir Tiere essen (obwohl wir sie mögen). Sozialpsychologische Erklärungsansätze für das Fleischparadox

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Abstract

Wieso essen Menschen Tiere, obwohl sie sie mogen? Ich argumentiere in diesem Beitrag, dass eine Anpassung des Essverhaltens an tierethische Anspruche mit einer Reihe emotionaler, identitärer und sozialer Herausforderungen einhergeht. Fur viele Akteure sind diese Herausforderungen nicht zu überwinden. Sie greifen stattdessen auf Rationalisierungsstrategien zuruck, um die kognitive Dissonanz als Folge ihres ambivalenten Verhältnisses zu Tieren zu reduzieren.

Schlüsselwörter: Fleischparadox, Mensch-Tier-Verhältnis, kognitive Dissonanz, moralische Inkonsistenz, Rationalisierung

1. Einleitung

Das Fleischparadox beschreibt das Phänomen, dass viele Menschen einerseits Tiere und tierische Produkte konsumieren und es andererseits ablehnen, empfindungsfähigen, nichtmenschlichen Wesen Leid zuzufügen. In den letzten Jahrzehnten hat dieses Phänomen wachsendes Interesse innerhalb verschiedener akademischer Disziplinen erfahren. Dabei haben sich zwei Hypothesen herauskristallisiert, welche für die Erklärung des Problems von besonderer Bedeutung sind: Erstens wird argumentiert, dass ein paradoxes Verhältnis zu Tieren das Produkt einer systematischen Trennung zwischen tierischen Lebensmitteln und deren Herstellung ist (Vialles, 1994; Wiedenmann, 1998); als Folge dieser Trennung ist vielen Akteuren gar nicht bewusst, mit welchen Bedingungen und Konsequenzen der Verzehr tierischer Produkte verbunden ist. Zweitens haben verschiedene Studien aufgezeigt, dass *Fleischkonsumenten* ihr Essverhalten rationalisieren (z.B. Joy, 2010; Loughnan et al., 2010, 2014; Piazza et al., 2015) bzw. durch die Verwendung einer euphemisierenden Sprache die Konsequenzen dieses Essverhaltens verschleiern. Die Tierrechtsaktivistin Carol Adams (1990) weist zum Beispiel darauf hin, dass in der englischen Sprache die Bezeichnungen von tierischen Speisen deren Herstellungsursprünge verdecken (z.B. »veal parmesan« anstelle von »pieces of butchered, anemic baby calves« (ebd., S. 97), die Soziologin Julia Gutjahr (2014) entdeckt dasselbe Phänomen, wenn über »artgerechte Tierhaltung« beziehungsweise »›gute‹ oder ›glückliche‹ Leben« (ebd., S. 383) von Nutztieren gesprochen wird. Solche Strategien helfen den Akteuren, die kognitive Dissonanz aufzulösen, welche sich im Vollzug der Bewusstwerdung der Auswirkungen einstellen kann, die die eigene Ernährungspraxis für das Wohlergehen anderer Lebewesen hat (Bastian et al., 2012).

Trotz ihres unbestrittenen Erklärungspotenzials vermögen beide Ansätze eine wesentliche Frage nicht zu beantworten. Vorausgesetzt, dass die Trennung zwischen tierischen Lebensmitteln und Tierproduktion[1] eine Primärerfahrung vieler Menschen konstituiert, wäre eine Anpassung des Essverhaltens (z.B. eine vegetarische oder vegane Ernährung) an die eigenen moralischen Ansprüche gegenüber Tieren eine ebenso plausible Reaktion auf die Auflösung dieser Trennung wie eine Rationalisierung der eigenen Ernährung (Beardsworth & Keil, 1993; Povey et al., 2001; Swanson et al., 2001]). Wieso also greifen Vertreter des Fleischparadoxes überhaupt auf Rationalisierungsstrategien zur Reduktion ihres emotionalen Unbehagens zurück, anstatt ihre Ernährungspraxis auf den Prüfstand zu stellen?[2] Die kardinale These, welche ich zur Beantwortung dieser Frage vorschlage, kann wie folgt formuliert werden: Obgleich eine Anpassung des Essverhaltens einen Ausweg aus dem emotionalen Konflikt zwischen moralischen Ansprüchen und Ernährungspraxis liefert, bringt sie neue Unannehmlichkeiten hervor. Eine solche Ernährungsumstellung ist nämlich mit einer Reihe sozialer, emotionaler und identitärer Herausforderungen verbunden, denen sich der Einzelne ebenfalls zu stellen hat. Die Rationalisierung bietet demgegenüber die Option, solchen Herausforderungen aus dem Weg zu gehen.[3]

Der Beitrag gliedert sich in vier Abschnitte. Im ersten Abschnitt (2) lege ich die Verbreitung und damit die Relevanz des Fleischparadoxes in der gegenwärtigen westlichen Gesellschaft dar und diskutiere die bisherigen Erklärungsansätze zum Phänomen. In den weiteren Abschnitten entwickle ich dann die bereits vorgestellte These, welche sich in drei Teilbehauptungen gliedert. Zunächst werde ich zeigen, dass eine Anpassung des Essverhaltens eine fortwährende Auseinandersetzung mit den Bedingungen der Tierproduktion bedarf. Diese Auseinandersetzung wird aber von vielen Menschen als verstörend empfunden (3). Selbst wenn dieses verstörende Moment ausgehalten wird, muss eine adaptierte

1 Als tierische Produkte, Tierprodukte oder tierische Lebensmittel werden im Folgenden Produkte bezeichnet, die entweder direkt aus Tieren hergestellt (z.B. Fleisch) oder von diesen gesammelt werden (z.B. Milch). Wohlwissend, dass ich hiermit eine Vereinfachung des Phänomens vornehme, beschränke ich mich außerdem auf die gängigsten tierischen Lebensmittel im westlichen Kulturkreis – nämlich solche, welche von Rindern, Schweinen, Ziegen, Schafen und Geflügel stammen –, die gemäß *Fleischatlas 2014* über 98% des weltweiten Fleischkonsums abdecken (HBS, 2014). Den Verzehr von Fisch- und anderen Meeresprodukten berücksichtige ich hier nicht explizit, obwohl aktuelle wissenschaftliche Erkenntnisse nahelegen, auch aquatilen Lebewesen mehr moralische Beachtung zu schenken (Brown, 2015). Dies liegt vor allem daran, dass der gegenwärtige Forschungsstand kaum Auskunft über den moralischen Bezug sozialer Akteure zu aquatischen Spezies beziehungsweise zu den moralischen Konflikten hinsichtlich deren Verzehrs gibt.

2 Ich möchte an dieser Stelle betonen, dass dieser Beitrag nicht darauf abzielt, Fleischesser für ihre moralische Inkonsistenz zu kritisieren. Ich beabsichtige lediglich eine Diskussion derjenigen Faktoren, die zu einer Rationalisierung anstelle einer Anpassung des eigenen Essverhaltens führen. Meine persönlichen, biografischen Erfahrungen als Veganer erachte ich bei dieser Diskussion – dem Leser möge aber hier die finale Beurteilung zukommen – als theoretische Inspiration, nicht als Quelle der Verzerrung.

3 Die empirische Grundlage dieser These stammt aus meiner Masterarbeit *Zwischen Genuss und Angst – Über unser paradoxes Verhältnis zu Tieren* (2014). Im Rahmen dieser Arbeit führte ich semi-strukturierte Interviews, welche auf Basis der *Grounded Theory* (Glaser&Strauss,1967) ausgewertet und durch Sekundäranalysen von bereits existierendem Datenmaterial über Vegetarier und Veganer ergänzt wurden.

Ernährungspraxis dauerhaft in einem sozialen Umfeld gelebt, legitimiert und verteidigt werden, in denen der Konsum tierischer Produkte eine (noch immer) weitestgehend unhinterfragte Normalität ist (4). Daran knüpft schließlich die dritte Teilbehauptung an, der zufolge eine Anpassung des eigenen Essverhaltens an die moralischen Ansprüche gegenüber Tieren einen identitären und das heißt potenziell dissonanzreichen Wandlungsprozess mit sich bringt. Zusammenfassend gesprochen bringt die Berücksichtigung tierethischer Aspekte in der eigenen Ernährung weitreichende Konsequenzen mit sich. Und trotz eines affektiv-moralischen Bezugs zu nichtmenschlichen Tieren bevorzugen es viele Akteure, diese Konsequenzen zu vermeiden.

Vorab scheint mir noch ein Hinweis bezüglich der Reichweite der vorliegenden Überlegungen wichtig. Wenn ich hier vom affektivmoralischen Bezug zu nichtmenschlichen Tieren spreche, möchte ich nicht suggerieren, dass eigentlich alle Menschen ein solches Verhältnis zu Tieren hätten. Ebenso wenig ist dieser Bezug aber binär zu verstehen. Deraffektiv-moralische Bezug zu Tieren scheint vielmehr ein Kontinuum zu sein, dessen Anfang von besonders großen Tierliebhabern gestellt und dessen Ende von solchen Akteuren besetzt wird, die ein eher indifferentes oder sogar feindseliges (siehe Agnew, 1998) Verhältnis zu Tieren pflegen. Auch die Umsetzung tierethischer Ansprüche im Essverhalten stellt ein Kontinuum dar, auf dem es zwischen dem indifferenten Fleischesser und dem tierliebenden Veganer eine ganze Reihe von Zwischenstufen gibt (Beardsworth & Keil, 1992; Ruby, 2012), Angesichts der daraus resultierenden Komplexität des Verhältnisses zwischen tierethischen Ansprüchen und Essverhalten mag es dem ein oder anderen Leser etwas irritierend erscheinen, wenn in diesem Text von »Vertretern des Fleischparadoxes« gesprochen wird. Diese Irritation lässt sich meines Erachtens auflösen, wenn man sich einen solchen Vertreter weniger als real- denn als idealtypisch im Sinne Max Webers (1904) denkt. Ich beabsichtige hiermit eine überspitzte Darstellung des sozialen Phänomens, dass Menschen entgegen moralischer Überzeugungen Tiere und tierische Produkte essen. Die individuell-empirische Ausprägung dieses Phänomens kann dabei durchaus sehr viel komplexer sein. Insbesondere schließe ich wie erwähnt nicht aus, dass es Personen gibt, die überhaupt keine moralischen Bedenken in Bezug auf den Verzehr von Tieren haben.

2. Hintergrund

Die meisten Menschen der gegenwärtigen Industrienationen scheinen allerdings ein widersprüchliches Verhältnis zu Tieren zu pflegen (Singer, 1975; Herzog, 2010; Joy, 2010).[4] Einerseits spricht sich die

4 Selbstverständlich sind widersprüchliche Verhältnisse zu Tieren nicht auf die westlichen Industrienationen beschränkt (siehe z.B. Herzog, 2010), ebenso wenig wie die hier beschriebenen Rationalisierungstendenzen dieses Verhältnisses (Noske, 2015). Im Vergleich zur Situation des Westens gibt es allerdings über die moralische Beziehung zu Tieren und die daraus resultierenden Konsequenzen im Hinblick auf das individuelle Essverhalten wenig empirisches Material aus anderen Kulturkreisen (zu den wenigen Ausnahmen gehören z.B. Gietl, 2014; Ruby et al., 2016). Wenn überhaupt, deuten diese an, dass tierethische Erwägungen eine geringere Rolle als Motivation für eine fleischfreie Ernährung spielen (Ruby et al., 2013). Aus diesen Gründen möchte ich mich im Folgenden im Wesentlichen auf den Westen beschränken. Erwähnenswert ist auch, dass das Fleischparadox nicht das einzige Beispiel für paradoxe Mensch-Tier-Verhältnisse ist (für einen Überblick hierzu siehe auch Herzog, 2010). Solche Verhältnisse sind aber im

Mehrheit der Bevölkerung für ein Leben nichtmenschlicher Tiere ohne unnötiges Leid aus (Foster, 1996; Miele, 2010), hält insbesondere den Schutz sogenannter »Nutztiere« für wichtig (EK, 2007) und ist auch prinzipiell bereit, zur Verbesserung der Lebensqualität solcher »Nutztiere« den eigenen Fleischkonsum zu reduzieren (HBS, 2013); andererseits zeigen Untersuchungen, dass nur etwa jeder 15. Bürger seine moralischen Ansprüche konsequent im Essverhalten berücksichtigt (Statista, 2015).[5] Selbst der Konsum von Tierprodukten aus ökologischer Landwirtschaft, welche allgemein verbesserte Haltungsbedingungen gewährleistet (Schmid & Kilchsperger, 2011), bleibt marginal (Schlachthof Transparent, 2013). Stattdessen greifen die meisten Menschen auf Produkte der Intensivtierhaltung zurück, welche sinnbildlich für die historisch schlechten Lebensbedingungen landwirtschaftlich genutzter Spezies stehen (Rollin, 2003; Harrison, 2013). Gemäß *Fleischatlas 2014* werden jährlich etwa 65 Milliarden Landtiere für Nahrungszwecke getötet (HBS, 2014). Verantwortlich dafür sind vor allem die industrialisierten Länder, welche nicht nur die führenden Fleischproduzenten darstellen (USDA, 2015), sondern mit einem Pro-Kopf-Verzehr von durchschnittlich 76,1 kg jährlich (FAO, 2014; der globale Durchschnitt liegt bei 42,9 kg) auch die weltweit größten Fleischkonsumenten repräsentieren. Ähnliche Verhältnisse gelten für den Konsum tierischer Produkte wie Eier und Milchprodukte (FAO, 2015).

Doch wie kommt es, dass Menschen in ihrem Essverhalten nicht ihren moralischen Ansprüchen folgen? Sicherlich ist festzuhalten, dass nicht jeder ein gleichermaßen affektiv-moralisches Verhältnis zu Nutztieren pflegt. Viele Menschen werden zum Beispiel das tierische Bedürfnis nach einem leidfreien Leben als relevant empfinden, ordnen dieses Interesse aber ihrem eigenen Verlangen nach tierischen Produkten unter (Frank, 2014). Außerdem kann sich der moralische Bezug zu Tieren durchaus auf bestimmte Spezies beschränken (Herzog, 2010). Mit anderen Worten: Die Sorge um das Wohlergehen anderer Lebewesen ist durchaus mit einem angenommenen Vorrang der Interessen und Bedürfnisse bestimmter Spezies (vor allem des Menschen) gegenüber anderen vereinbar. In der Tat konnten eine Reihe empirischer Arbeiten nachweisen, dass solche – in der Terminologie des

vorliegenden Beitrag ebenso wenig von Interesse.

5 Ganz ähnlich lässt sich im Übrigen im Hinblick auf die ökologischen Ansprüche vieler Menschen argumentieren. Die allermeisten Menschen halten nämlich den Schutz der Umwelt für wichtig und sehen sich auch selbst in der Verantwortung, zu diesem Schutz beizutragen (EK, 2008). Vor allem die Massentierhaltung, welche in Deutschland Schätzungen zufolge für 98% der Tierproduktion verantwortlich ist (Zösch & Schäfer, 2010), haben aktuelle Studien allerdings als Hauptursache für die Klimaerwärmung (FAO, 2006), den Wasserverbrauch (Mekonnen & Hoekstra, 2012), das Umkippen der Meere und die allgemeine Gewässerverschmutzung (FAO, 2006), die Regenwaldabholzung (FAO, 2006) sowie die Ausrottung anderer Spezies (WWF, 2015) identifiziert. Tatsächlich problematisieren Wissenschaftler seit Jahrzehnten die industrielle Tierproduktion aufgrund ihres immensen, ineffizienten Bedarfs an Ressourcen wie Wasser, Land und Energie (für einen Überblick siehe Gossard & York, 2003). Vor diesem Hintergrund wird inzwischen argumentiert, dass eine deutliche Reduktion des Konsums tierischer Produkte für das Erreichen internationaler Klimaziele unerlässlich ist (Hedenus et al., 2014). Es ist mithin nicht überraschend, dass auch ökologische Gründe eine Reduktion im Konsum solcher Lebensmittel motivieren (z.B. Asher et al., 2014). Dennoch bleibt auch in dieser Hinsicht eine konsequente Auslebung ökologischer Ansprüche im Essverhalten marginal. Es bleibt eine offene Forschungsfrage, inwieweit die hier geführte Argumentation auch auf dieses Paradox anwendbar ist.

australischen Ethikers Peter Singer gesprochen – *speziesistischen* (Singer, 1975) Überzeugungen eine wichtige Rolle im Hinblick auf den Konsum tierischer Produkte spielen (z.B. Agnew, 1998; Allen et al., 2000; Flynn, 2001; Plous, 2003).

Der speziesistische Ansatz liefert allerdings nur auf den ersten Blick eine Erklärung für das Fleischparadox. Wer die eigenen, zum Beispiel kulinarischen Interessen den Bedürfnissen der Tiere überordnet, lebt ja in diesem Sinne kein paradoxes Verhältnis zu anderen Lebewesen. Und wie ich zu Anfang dieses Abschnitts erwähnt habe, geht für viele Akteure die moralische Berücksichtigung von Tieren gerade mit der potenziellen Bereitschaft einher, eigene Interessen zum Wohle anderer Lebewesen einzuschränken. Was aber hindert solche Menschen an der Umsetzung ihrer moralischen Ansprüche?

Einige Erhebungen geben Grund zur Annahme, dass vielen Akteuren der Zusammenhang zwischen ihren Lebensmitteln und deren tierischem Ursprung nicht unmittelbar bewusst bzw. wenig über die tatsächliche Herstellung tierischer Lebensmittel bekannt ist. Nicht nur fühlen sich viele Akteure nach eigener Einschätzung schlecht über die tatsächlichen Herstellungsbedingungen tierischer Produkte informiert (EK, 2007; Vanhonacker et al., 2010; Healy, 2014); einige Studien zeigen auch, dass die öffentlichen Kenntnisse zur Herstellung tierischer Lebensmittel begrenzt sind (Plous, 1993, 2003; Healy, 2014). Dies führt in manchen Fällen zu einer Entfremdung des Lebensmittels von dessen tierischem Ursprung. Der amerikanische Psychologe Scott Plous weist zum Beispiel darauf hin, dass jeder dritte amerikanische Jugendliche nicht weiß, dass Butter, Käse oder Eiscreme Milcherzeugnisse sind (Plous, 1993). Ähnliche Unkenntnisse gelten auch für andere Tierprodukte (Plous, 2003). In eine vergleichbare Richtung gehen Untersuchungen zu den Motivationen hinter einer vegetarischen oder veganen Ernährung: Ein ethisch motivierter Fleischverzicht geht häufig mit einem Moment der Einsicht einher, dass es sich bei Fleisch um ein Stück Kadaver handelt (Carmichael, 2002; Grube, 2009; Ruby, 2012). Der Transformationsprozess des lebenden Tiers in Nahrung war diesen Akteuren zuvor nicht vollständig bewusst.

Die bereits erwähnte These einer Dichotomie zwischen menschlicher Lebenswelt und Tierproduktion macht die Entfremdung zwischen Lebensmittel und dessen tierlichem Ursprung verständlich. Gemäß dem Tierethiker Bernard Rollin (1995) wird die Landwirtschaft ab dem 19. Jahrhundert zunehmend wirtschaftlichen Interessen unterworfen, zu diesem Zweck industrialisiert und in der Konsequenz intensiviert. Während allerdings in der vorindustriellen Zeit Menschen und Tiere in einer Art symbiotischem Verhältnis lebten und sich in aller Regel ihre Lebensräume teilten, geht die Intensivierung der Tierproduktion mit einer räumlichen Trennung von Mensch und »Nutztier« einher. Dies gilt umso mehr für die Schlachtung der Tiere, welche zunehmend in von der Bevölkerung isolierten, spezialisierten Schlachthäusern stattfindet, deren Innenleben einem Großteil der Menschen unbekannt bleibt (Fitzgerald, 2010; Pachirat, 2011). Schließlich wird sogar der tierische Ursprung der Lebensmittel selbst gezielt kaschiert: Wie der Soziologe Rainer Wiedenmann ausführt, werden diese durch den abgepackten Massenvertrieb in Supermärkten anonymisiert und durch Entfernung aller an das lebende Tier erinnernden Merkmale *deanimalisiert* (Wiedenmann, 1998). Zusammenfassend argumentiert Wiedenmann, dass die Fleischproduktion »der Wahrnehmung entzogen und ›hinter die Kulissen des menschlichen Lebens‹ (N. Elias) verlegt [wird]« (ebd., S. 375), eine Tendenz, die

übrigens gezielt von der Fleischindustrie aufgrund der vorherrschenden tierethischen Bedenken in der Bevölkerung forciert wird (Gregory, 1998; Joy, 2010). Dementsprechend gering ist folglich auch das öffentliche Bewusstsein über die Herstellung tierischer Lebensmittel und deren Implikationen für das tierliche Wohlergehen. Die Konsequenz ist, dass die persönliche Ernährungspraxis häufig von der tierischen Lebenswelt abgeschnitten und der eigene Fleischkonsum nicht mit dem Leiden der Tiere in Verbindung gebracht wird. Vor diesem Hintergrund muss ein affektiv-moralischer Tierbezug auch nicht als widersprüchlich zum eigenen Essverhalten erlebt werden.

Trotzdem würde es zu kurz greifen, das Fleischparadox allein als Folge solch institutionalisierter Unwissenheit zu erklären. Wie die Sozialpsychologen Steve Loughnan, Brock Bastian und Nick Haslam zur *Psychologie des Fleischessens* (2014) treffend formulieren, isst ein Großteil der omnivoren Bevölkerung »Fleisch in vollem Bewusstsein darüber, dass es von Tieren stammt und diese dafür getötet werden« (ebd., S. 104). Dies hindert sie freilich nicht daran, die Bedürfnisse und Interessen der gegessenen Tiere als moralisch relevant zu empfinden. Das Fleischparadox ist also komplexer, als es speziesistische und die Entfremdung von der Tierproduktion betonende Erklärungsansätze allein zu erfassen vermögen.

Die Sozialpsychologin Melanie Joy (2010) versucht, dieser Komplexität mit dem Konzept des *Karnismus* gerecht zu werden. Der Karnismus kann als Gegenstück zu den Begriffen Vegetarismus und Veganismus betrachtet werden. Er beschreibt die Ideologie, der zufolge die Nutzung und der Verzehr bestimmter Tiere als moralisch vertretbar angesehen wird. Nach Joy ist der Karnismus die dominante Ideologie der gegenwärtigen Gesellschaft. Er prägt unsere Überzeugungen, Handlungen, Gedanken, Normen, Gesetze etc. und lässt als natürlich und richtig erscheinen, was der Autorin zufolge bei genauerer Analyse gleichermaßen irrational wie kontingent ist und vor allem unserer angeborenen Empathie gegenüber Tieren zuwiderläuft. Der Karnismus ist nämlich laut Joy eine gewalttätige Ideologie, da Fleisch nicht ohne Töten und Tierleid hergestellt werden kann. Analog zu anderen dominanten und gewalttätigen Ideologien basiert auch diese auf Abwehrmechanismen, die es Individuen ermöglichen, an leidverursachenden Praktiken teilzuhaben, ohne vollständig zu realisieren, was sie tun. Solch eine partielle Bewusstseinsbeschränkung erlaubt es insbesondere, Gefühle des Mitleids gegenüber anderen Lebewesen zu unterdrücken. Die Psychologin vereint an dieser Stelle die bereits beschriebenen Erklärungsmodelle der institutionalisierten Unwissenheit und des Speziesismus: Zwar wissen die Akteure, dass das Schnitzel auf ihrem Teller im wörtlichen Sinne ein Stück Tierleiche ist; sie können sich aber emotional von dem damit verbundenen Tierleid distanzieren. Die emotionale Distanz wird nun dadurch zementiert, dass die Nutzung der Tiere durch den Menschen rationalisiert wird.[6] Im Unterschied zu speziesistischen Ansätzen betont Joy allerdings, dass wir uns durch diese Rationalisierungen im Grunde genommen selbst betrügen: Die vorgebrachten Rechtfertigungen für unser ambivalentes Verhältnis zu Tieren sind im Wesentlichen Scheingründe, welche die belastende

6 Rationalisierung meint im Folgenden die (häufig künstliche) Generierung von Gründen für ein bestimmtes Verhalten, wenn dieses kritisiert oder zumindest Gegenstand genauerer Betrachtungen wird (Mercier, 2011); im Sinne der kognitiven Dissonanztheorie (Festinger, 1957), kann dies vor allem dann eintreten, wenn ein Verhalten den eigenen Einstellungen des Akteurs zuwiderläuft und dieser sein Verhalten nicht zuletzt gegenüber sich selbst zu rechtfertigen versucht (Kunda, 1990; Tsang, 2002).

Ambivalenz zwischen Mitgefühl gegenüber Tieren einerseits und den Zwängen des karnistischen Systems andererseits besänftigen.

Die Thesen Joys konnten in mehreren sozialpsychologischen Untersuchungen bestätigt werden. Zum einen lieferten die Forscher um Brock Bastian und Steve Loughnan Hinweise dafür, dass die gezielte Erinnerung an den Ursprung des tierischen Lebensmittels in zeitlicher Nähe zu dessen Konsum negative Emotionen bei den Akteuren hervorruft; im Sinne des amerikanischen Psychologen Leon Festinger (1957) kann diese Emotion als *kognitive Dissonanz* bezeichnet werden (Bastian et al., 2012). Zum anderen zeigten sie, dass die betroffenen Akteure diese Dissonanz dadurch reduzierten, dass sie den konsumierten Tieren – *ex post* – mentale Fähigkeiten absprachen, welche deren Lebenswirklichkeiten überhaupt erst problematisch machen (Loughnan et al., 2010, 2014). Der emotionale Konflikt zwischen moralischen Bedenken einerseits und dem tatsächlichen Essverhalten andererseits produziere demzufolge falsche Glaubensvorstellungen, welche zur Reduktion der erlebten Dissonanzen beitrage.

Nun ist offensichtlich, dass der beschriebene moralische Konflikt nicht notwendigerweise im Selbstbetrug der Akteure mündet. Nicht zuletzt stellen auch eine vegetarische oder vegane Ernährung Möglichkeiten dar, das Essverhalten an die moralischen Vorstellungen anzupassen. Vor diesem Hintergrund stellt sich die Frage, wieso sich der eine Akteur für die Adaptation seiner Ernährungsweise an die eigenen Überzeugungen entscheidet, während der andere seine Ernährungspraxis rationalisiert.[7] Oder anders gefragt: Welche Faktoren beeinflussen die Entscheidung für oder gegen eine fleisch- bzw. tierproduktfreie Ernährung, sofern der Zusammenhang zwischen tierischem Lebensmittel und Tierproduktion einmal in deren Bewusstsein getreten ist?

3. Eine unangenehme Erfahrung

Essen ist mehr als eine biologische Notwendigkeit. Symbolische Funktionen, gesundheitliche Vorstellungen oder identitäre Bedeutungen durchziehen menschliche Ernährungspraxen über raumzeitliche Grenzen hinweg und machen sie zu einem dezidiert kulturellen Phänomen. Dem Konsum tierischer Produkte kommt dabei unter der Vielzahl verfügbarer Lebensmittel eine besondere Relevanz zu (Fiddes, 1991; Trummer, 2014). Vor allem der Fleischkonsum ist tief in der abendländischen Esskultur verwurzelt. »Das Tier auf dem Teller« ist fester Bestandteil der alimentären Sozialisation der meisten Menschen der Industrienationen und wird von diesen weitestgehend als selbstverständliche Normalität empfunden (Piazza et al., 2015).

7 Ich behaupte nicht, dass sämtliche Rationalisierungen des Konsums tierischer Produkte Selbsttäuschungen darstellen. Diese Frage wäre für die entsprechenden Begründungen im Einzelfall abzuklären. Meine zugrunde liegende Annahme ist allerdings, dass affektivmotivationale Dispositionen die Akzeptanz oder Nichtakzeptanz solcher Begründungen beeinflussen (siehe auch Stanley, 2005). Um die Identifikation solcher Dispositionen dreht sich dieser Beitrag.

Markant an dieser Sozialisation ist nun die bereits erwähnte Beobachtung, dass sie zumindest in der Gegenwart mit einer Dissoziation zwischen dem Tier als Lebewesen und den daraus hervorgehenden Lebensmitteln einhergeht. So selbstverständlich also der Verzehr tierischer Lebensmittel für die meisten ist, so nebulös ist auch der animalische Ursprung dieser Produkte und die Art und Weise, wie ein nichtmenschliches Lebewesen in Essbares transformiert wird (Abb. 1). Dank dieser institutionalisierten Vergessenheit des Zusammenhangs zwischen lebendem Tier und Lebensmittel lässt eine solche alimentäre Sozialisation auch zu, dass man der Selbstverständlichkeit des Konsums tierischer Produkte zum Trotz zugleich ein affektivmoralisches Verhältnis zu Tieren kultiviert.

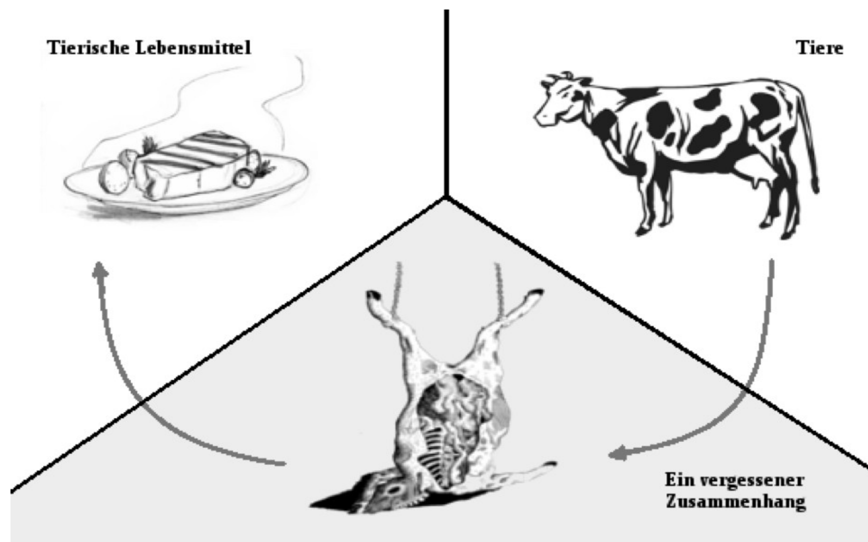

Abb. 1: Die Dissoziation zwischen Tierproduktion und tierischen Produkten.

Was nun auf den ersten Blick wie eine gewissensentlastende Strategie für karnivore Tierliebhaber aussieht, stellt bei genauerem Hinsehen gleich in mehrfacher Hinsicht ein dissonanzreiches Gebilde dar. Meine Behauptung in diesem Abschnitt ist, dass sich der Bezug zu tierischen Lebensmitteln in zwei antagonistischen Erfahrungsmomenten konstituiert, die ich *primäre* und *sekundäre Erfahrung mit Tierprodukten* nenne. Die Primärerfahrung entspricht dabei der alimentären Sozialisation, im Rahmen derer sich eine Wertschätzung gegenüber Nahrungsmitteln animalischen Ursprungs einstellt. Wie bereits der Ernährungsphysiologe Hans Glatzel (1973) an Untersuchungen zum menschlichen Ernährungsverhalten gezeigt hat, werden unsere Geschmackstrukturen vor allem im familiären Rahmen während des Kindes und Jugendalters geprägt. Hier entwickelt sich für viele eine geschmackliche Wertschätzung tierlicher Lebensmittel, deren Verfügbarkeit als gleichermaßen omnipräsent und moralisch unproblematisch erlebt wird (Lymbery, 2014). Teil der Primärerfahrung ist auch, dass Tierprodukte ein wesentlicher Bestandteil vieler sozialer Anlässe sind: Ob der Grillabend mit Freunden, der Weihnachtsbraten im familiären Kreis oder das Kuchenstück in geselliger Runde, der Verzehr tierischer Produkte ist gesetzte Komponente vieler gesellschaftlicher Aktivitäten (Trummer, 2014). Zusammengefasst zeigen sich tierische Produkte im Rahmen der Primärerfahrung als schmackhafte, gemeinschaftsfördernde und leicht verfügbare Lebensmittel, deren moralische Problematik weitestgehend unbemerkt bleibt.

Der Primärerfahrung des positiv konnotierten Konsums tierischer Produkte steht nun eine Sekundärerfahrung gegenüber: Die Bewusstwerdung des animalischen Ursprungs dieser Produkte sowie der Implikationen, welche mit ihrer Herstellung einhergehen. Allen voran gehört zu diesen Implikationen der unausweichliche Tod oder zumindest das Leiden des nichtmenschlichen Lebewesens. Hier nun öffnet sich die Tür zu einem ambivalenten Verhältnis (Berndsen & van der Pligt, 2004) zu tierischen Lebensmitteln, zumindest bei denen, welche dem Wohlbefinden anderer Spezies nicht indifferent gegenüberstehen. Plötzlich wird dem Akteur klar, dass sein alimentäres Konsumverhalten nicht so unproblematisch ist, wie es bis dato schien. Die positive Primärerfahrung wird gestört durch eine desillusionierende Erfahrung tierischen Leids, welches mit dem eigenen moralisch-affektiven Bezug zu nichtmenschlichen Wesen nicht vereinbar ist.

Diese Erfahrung stellt den Einzelnen vor drei emotionale Schwierigkeiten: Erstens ist die unmittelbare Leidenserfahrung anderer Lebewesen an sich bereits für viele ein verstörendes Moment. Die Pädagogen Berthold Prill und Gernot Strey haben im Rahmen eines erlebnispädagogischen Projekts gezeigt, welch schockierende Wirkung die Schlachtung von Tieren auf Kinder hat, welche diese zuvor selbst gepflegt hatten (Prill & Strey, 1993). Von ähnlichen Erfahrungen berichten viele Vegetarier und Veganer, die entweder direkt einer Schlachtung beiwohnten oder in Form von Dokumentationen mit den Bedingungen der Tierproduktion vertraut gemacht wurden (Beardsworth & Keil, 1992; Carmichael, 2002; Grube, 2009) Die Bewusstwerdung des Tierleids verursacht zweitens eine Dissonanzreaktion bei den betroffenen Akteuren (Bastian et al., 2012). Sie macht nämlich nicht nur die Diskrepanz zwischen moralischen Ansprüchen und den tatsächlichen Konsequenzen des eigenen Handelns sichtbar, sondern ist gleichzeitig mit der Einsicht verbunden, dass das eigene Konsumverhalten ursächlich für das als emotional belastend und moralisch abstoßend (Plous, 1993; Allen et al. 2002) empfundene Tierleid ist, was wiederum bei vielen Akteuren mit Schuldgefühlen einhergeht (Berndsen & van der Pligt, 2004; Rousset et al., 2005). Drittens sorgt die geschilderte Sekundärerfahrung für eine weitere Dissonanz: Sie steht nämlich den positiven Erfahrungen konträr gegenüber, welche im Rahmen der alimentären Sozialisation mit tierischen Produkten gemacht wurden. Die Bewusstwerdung der tierethischen Implikationen des Konsums tierischer Produkte gibt mithin deren kulinarischer und sozialer Wertschätzung einen bitteren Beigeschmack.

Den Akteuren stehen nun drei Optionen zur Verfügung, mit den aus der Sekundärerfahrung resultierenden, emotionalen Unannehmlichkeiten umzugehen (Rothgerber, 2014). Eine naheliegende und vielfach praktizierte Möglichkeit ist die Rationalisierung des eigenen Essverhaltens bzw. dessen moralischer Problematik (Bastian et al., 2012; Rothgerber, 2012; Piazza et al., 2015). Je konsistenter und elaborierter die argumentative Untermauerung des Konsums tierischer Produkte ist, desto geringer sind auch die affektiv-moralischen Skrupel, welche mit diesem Konsum einhergehen (Berndsen & van der Pligt, 2004; Piazza et al., 2015). Eine weitere Möglichkeit ist, die Auseinandersetzung mit dem Zusammenhang zwischen Tier und Nahrungsmittel zu vermeiden, das heißt die Dissoziation dieses Zusammenhangs aufrechtzuerhalten und auf diese Weise den Dissonanzen aus dem Weg zu gehen (Rothgerber, 2012, 2014). Entgegen »besserem« Wissen und Gewissen wird hier die Konfrontation mit der Tierproduktion und den daraus folgenden emotionalen Unannehmlichkeiten umgangen und dadurch ein Zustand hergestellt, den die Philosophin Nancy Williams als *affektive Ignoranz* bezeichnet (Williams, 2008). Diese Strategie ist allerdings verhältnismäßig fragil, da der faktische

Zusammenhang zwischen lebendigem Tier und Tierprodukt die jeweiligen Akteure immer wieder einzuholen droht. Damit ist zugleich ein wesentliches Merkmal der Sekundärerfahrung angesprochen: Die Bewusstwerdung des animalischen Ursprungs tierischer Lebensmittel bzw. die damit verbundenen Implikationen für das Wohl der »Nutztiere« ist nämlich kein einmaliges Ereignis. Die Soziologen Alan Beardsworth und Teresa Keil (1992) schildern vielmehr, dass es sich dabei um einen fortlaufenden Prozess handelt. Im Vollzug dieses Prozesses erweitert sich das Gewahrsein der Auswirkungen des eigenen Konsumverhaltens für andere Lebewesen und stellt dabei die moralische Integrität und individuelle Lebensführung immer wieder von Neuem auf die Probe.

Bliebe also die dritte Möglichkeit, die Dissonanzen durch eine Anpassung des Essverhaltens an die eigenen moralischen Überzeugungen anzupassen.[8] Die offensichtliche Schwierigkeit an dieser Strategie ist, dass die Sekundärerfahrung zwar einerseits gute Gründe für einen Verzicht auf tierische Lebensmittel liefert; diese vermögen aber nicht, die Vorzüge einer tierbasierten Ernährungspraxis aufzulösen, sodass die betroffenen Akteure zwischen ihren moralischen Motiven und den sozio-kulinarischen Interessen hin und her gerissen sind. Eine dauerhafte Anpassung des Essverhaltens erfordert, diese Interessen zurückzustellen – eine Aufgabe, an denen viele Vegetarier und Veganer über kurz oder lang scheitern (Asher et al., 2014). Wie ich im Folgenden zeigen werde, liegt dies nicht allein an fehlender moralischer Disziplin.

4. Soziale Hürden einer moralisch motivierten Ernährungsumstellung

Um die Schwierigkeit einer dauerhaften Anpassung des Essverhaltens an die eigenen tierethischen Vorstellungen verständlich zu machen, ist es notwendig, die sozio-kulturelle Einbettung des Konsums tierischer Produkte genauer zu betrachten. Ich hatte bereits darauf hingewiesen, dass solche Lebensmittel zum festen Repertoire vieler gesellschaftlicher Anlässe zählen. Essen – und das heißt insbesondere Tierprodukte essen – ist gemeinschaftsbildend (Trummer, 2014). Soziologen sprechen

8 Genau genommen gibt es neben der Rationalisierung, der Vermeidung und der Anpassung des Essverhaltens noch eine vierte Möglichkeit, mit dem Erlebnis der Sekundärerfahrung umzugehen, nämlich die emotionale Desensibilisierung. Emotionale Desensibilisierung – insbesondere eine reduzierte Empathie – wird unter anderem als Auswirkung einer Konfrontation mit Gewalt diskutiert (z.B. Funk et al., 2004). Untersuchungen mit Arbeitern in Schlachthäusern legen nahe, dass solche Desensibilisierungsstrategien von zentraler Bedeutung für den Umgang mit dem täglichen Tierleid ist, für welche die Arbeiter direkt verantwortlich sind (Eisnitz, 1997; Dillard, 2007; Dorovskikh, 2015). Inwiefern die Desensibilisierung hinsichtlich des alltäglichen Konsums tierischer Lebensmittel relevant ist, kann in diesem Beitrag nicht geklärt werden. In jedem Fall scheint diese Strategie auch nicht direkt für die Diskussion des Fleischparadoxes relevant zu sein, da ja die Folge einer Desensibilisierung gegenüber Tieren gerade die Auflösung des moralisch-affektiven Bezugs ist, der die Grundlage des Fleischparadoxes darstellt. Relevant wird die Desensibilisierungstendenz vor allem dann, wenn es um Strategien geht, dem Fleischparadox hin zu einer moralisch konsistenteren Ernährung entgegenzuwirken. Die von Tierrechtsorganisationen wie PETA oder Animal Equality forcierte Strategie, Menschen mit Eindrücken aus Schlachthäusern zu konfrontieren, kann nämlich ebenso gut zu einer solchen Desensibilisierung führen. Die gläsernen Schlachthäuser in Dänemark scheinen die Konsumenten jedenfalls nicht für das tierische Wohlergehen zu sensibilisieren (Kwasniewski, 2014).

dem gemeinsamen Speisen eine besonders starke überindividuelle Regulierungsfunktion zu. »Im Essen individuell zu sein, […] wäre völlig deplaciert« (Simmel, 1910, S. 6), heißt es zum Beispiel beim Soziologen Georg Simmel. Wer seine Ernährung entgegen eines omnivoren Status Quo ausrichten möchte, entzieht sich dieser Gemeinschaftsbildung und stößt dabei auf innere wie äußere Widerstände, die ich im Folgenden erläutern möchte.

Der trivialste dieser Widerstände resultiert aus der Tatsache, dass die soziale Umgebung etwas verzehrt, was man auf kulinarischer Ebene selbst zu schätzen weiß. Sofern der Verzicht auf tierische Produkte nicht aus Geschmacksgründen erfolgt, verliert »das Tier auf dem Teller« durch die moralischen Bedenken ja keinesfalls seine gustatorische Anziehung. Tatsächlich kommt dieser Anziehung eine zentrale Bedeutung in der Erklärung dessen zu, wieso temporäre Vegetarier und Veganer nach einem gewissen Zeitraum wieder in eine omnivore Ernährungspraxis »zurückfallen«: Laut einer Studie des *Humane Research Councils* gibt mehr als jeder dritte frühere Vegetarier an, aus Geschmacksgründen zu Fleisch zurückgekehrt zu sein (Asher et al., 2014). Die persönlichen kulinarischen Gewohnheiten sind umso schwieriger zu durchbrechen, je mehr das soziale Umfeld an selbigen festhält.

Die Durchsetzung eines an die moralischen Ansprüche angepassten Essverhaltens verlangt aber von den Akteuren noch deutlich mehr als eine Zügelung kulinarischer Gelüste. Konkret resultieren aus der Ubiquität des Konsums tierischer Produkte drei Schwierigkeiten, welche ich im Folgenden erläutern möchte: (1) Das soziale Umfeld erfüllt gegenüber dem Einzelnen eine alimentäre Orientierungsfunktion, welche bei einem Verzicht auf tierische Produkte unter Umständen nicht mehr erfüllt wird; (2) ein an tierethische Erwägungen angepasstes Essverhalten verlangt eine permanente Rechtfertigung und Durchsetzung desselben gegenüber sozialen Erwartungen; (3) der Konsum tierischer Produkte ist mit sozio-identitären Vorstellungen verknüpft, welche durch eine Änderung des eigenen Essverhaltens gefährdet werden.

(1) Esspraxen sind immer in einen soziomateriellen Kontext eingebettet (Sutton, 2006; Di Giulio et al., 2014). Zwar ist die Einverleibung von Nahrungsmitteln als solche eine anthropologische Konstante; welche Lebensmittel allerdings konsumiert werden, wie man diese beschafft, zubereitet und aufnimmt und an welchem Ort zu welcher Zeit dies geschieht, ist abhängig von kulturellen Vorstellungen und materiellen Ausstattungen. Diese sozio-materielle Einbettung steckt nicht nur die Grenzen und Möglichkeiten einer individuellen Auslebung alimentärer Vorstellungen ab, sie geht auch mit der Vermittlung eines spezifischen Wissens einher, welches zur Umsetzung solcher Vorstellungen nötig ist. Begrenzte Einkaufsmöglichkeiten, ein fehlendes Angebot der öffentlichen Gastronomie usw. erschweren die Anpassung des eigenen Essverhaltens genauso wie fehlendes Wissen um alternative Angebote oder Kompetenzen in der Küche. Angesichts der Tatsache, dass der Verzehr tierlicher Lebensmittel weiterhin den Status quo westlicher Esspraxen verkörpert, ist es nicht verwunderlich, dass sich Umsteiger genau mit diesen Einschränkungen konfrontiert sehen (Beardsworth & Keil, 1993). Diese stellen für viele einen Grund dar, zu ihren alten Essgewohnheiten zurückzukehren (Asher et al., 2014).

Zugleich ist mit dem Gesagtenaucherstmals angedeutet, welch fundamentale Bedeutung die Unterstützung des direkten sozialen Umfelds für die Umsetzung tierproduktfreier Essvorstellungen hat (Beardsworth & Keil, 1992; Lea & Worsley, 2001; Grube, 2009). Wo nämlich die Absicht einer alimentären Neuorientierung nicht durch die Mitmenschen unterstützt oder sogar blockiert wird, ist es für das Individuum umso schwerer, etwaige Intentionen in die Tat umzusetzen. Insbesondere bei jungen Menschen spielt dabei das Elternhaus eine zentrale Rolle. Beardsworth und Keil (1992) schildern zum Beispiel, dass ein erfolgreicher »Konvertierungsprozess« in Richtung einer vegetarischen oder veganen Ernährung nahezu immer familiär unterstützt wird, das heißt entsprechende Speisen zubereitet und gekauft werden und eventuell sogar Familienmitglieder den eingeschlagenen Ernährungsweg mitgehen. Auch in Partnerschaften sind geteilte Essgewohnheiten ein stabilisierender Faktor beim Verzicht auf tierische Produkte, ebenso wie ein nicht-karnivorer Freundeskreis eine wichtige Einflussgröße in der Aufrechterhaltung eines angepassten Ernährungsverhaltens ist (Lea & Worsley, 2001).

Ein spezieller Fall der gesellschaftlich-alimentären Orientierungsfunktion betrifft die gesundheitliche Seite der Ernährung. Zwar ist Essen zunächst eine biologische Notwendigkeit und versorgt den Organismus mit zum Überleben erforderlichen Nährstoffen; andererseits können spezifische Lebensmittel auch gesundheitsschädlich sein und unangemessene Essgewohnheiten auf Dauer eine Gefahr für das leibliche Wohl darstellen, weshalb die Nahrungsaufnahme auch immer potenziell mit Ängsten und Ungewissheiten verbunden ist (Carmichael, 2002; Jackson, 2015). Kollektiv geteilte Esspraxen als Ausdruck allgemein geprüfter alimentärer Empfehlungen können zur Reduzierung dieser Ängste beitragen (Warde, 1997; Carmichael, 2002). Fleischundanderetierische Produkte sind seit Jahrhunderten Teil solcher kollektiv geteilten Esspraxen und gehören seit jeher zu den alimentären Empfehlungen offizieller diätetischer Behörden (Davis & Saltos, 1999). Lange Zeit wurde sogar seitens dieser Behörden die Tauglichkeit tierproduktfreier und sogar fleischfreier Ernährung bezweifelt (z.B. Barness, 1977). Es ist folglich auch wenig verwunderlich, dass viele Menschen trotz inzwischen gegenläufiger ernährungswissenschaftlicher Erkenntnisse Tierprodukte für gesundheitlich notwendig halten (Berndsen & van der Pligt, 2004; Piazza et al., 2015) und aus diesem Grund auch gegebenenfalls eine initiierte Ernährungsänderung wieder einstellen (Asher et al., 2014). Mediale Berichterstattungen über die tödlichen Auswirkungen einer veganen Ernährung bei Kindern taten in der Vergangenheit ihr Übriges, um eine gesundheitliche Skepsis gegenüber tierproduktfreier Esspraxen zu stabilisieren (u.a. Spiegel Online, 2004; Neyret, 2011; Rau, 2011). Obgleich sich in den letzten Jahren ein Trendwechsel hin zur Akzeptanz oder gar Empfehlung pflanzlicher oder pflanzenreicher Ernährungsformen abzeichnet (Craig et al., 2009; NHMCR, 2013; CPS, 2016), sind sie doch weit davon entfernt, Teil eines kollektiv geteilten, nicht hinterfragten Wissens über gesundheitlich angemessene Esspraxen zu sein.[9] Der Verzicht auf tierische Lebensmittel ist also potenziell mit gesteigerten gesundheitlichen Unsicherheiten verbunden. Dies gilt auch hier umso mehr, wo das direkte soziale Umfeld etwaige alimentäre Adaptionen nicht unterstützt oder sogar das Risikopotenzial tierfreier Ernährungsformen betont.

9 Dafür spricht zum Beispiel auch, dass die Deutsche Gesellschaft für Ernährung (DGE, 2016) zwar nicht explizit von einer veganen Ernährung abrät, einer solchen aber durchaus skeptisch gegenübersteht.

(2) Die Bedeutung des direkten sozialen Umfelds wird bei der Diskussion der zweiten Schwierigkeit einer Anpassung des Essverhaltens an tierethische Ansprüche noch deutlicher. Zu Beginn dieses Abschnitts habe ich darauf hingewiesen, dass eine solche Anpassung eine Durchsetzung abweichender Essformen auch in denjenigen Situationen verlangt, wo andere Akteure Tierprodukte konsumieren. Die Reaktion dieser Akteure auf abweichende Essformen blieb dabei unbeachtet, sie spielt aber eine entscheidende Rolle beim Verzicht auf tierische Produkte. Grundsätzlich gilt: Wer in einem omnivoren Umfeld Tierprodukte vom Speiseplan streicht, der erregt Aufmerksamkeit. Unabhängig von der Qualität dieser Aufmerksamkeit kann bereits das Herausstechen aus dem alltäglich Normalen eine unangenehme Erfahrung sein und ist für viele temporäre Vegetarier und Veganer ein entscheidender Grund, zu früheren Ernährungsgewohnheiten zurückzukehren (Asher et al., 2014). In den meisten Fällen gehören allerdings explizit negative Reaktionen zu deren Erfahrungsschatz. Dies liegt unter anderem daran, dass ein Verzicht auf tierische Produkte häufig mit der Forderung anderer einhergeht, diesen zu rechtfertigen. Wie unter anderem Beardsworth und Keil (1992) berichten, wird bei dieser Gelegenheit so manch »alimentärer Ausreißer« auch gleich auf seine weiterhin bestehenden moralischen Inkonsistenzen hingewiesen, um dessen Essverhalten zu entplausibilisieren. Zwar weist der Soziologe Richard Carmichael (2002) darauf hin, dass sich gerade in solchen Situationen eine fleischfreie Ernährung entwickeln bzw. stabilisieren kann; der Erklärungszwang kann aber ebenso gut dazu führen, dass ehemals moralisch motivierte Fleischverzichter ihre tierethischen Motive verbergen und beispielsweise geschmackliche Gründe für ihre Ernährungspraxen heranziehen, weil diese weniger Rückfragen provozieren (Beardsworth & Keil, 1992).

Eine vegetarische oder vegane Ernährung muss aber keineswegs explizit thematisiert werden, um den Akteur in soziale Unannehmlichkeiten zu bringen. Gemeinsame Essen, Einladungen und dergleichen bieten genügend implizites Potenzial, um den Verzicht auf tierische Produkte zum Problem werden zu lassen. Akteure berichten zum Beispiel davon, dass Freunde oder Familienmitglieder auf einen Verzicht auf zubereitete, Tierprodukte beinhaltende Speisen gekränkt reagieren (Carmichael, 2002). Nicht selten wird dann dem emotionalen Empfinden nahestehender Menschen eine höhere Bedeutung zugemessen als den tierethischen Überzeugungen. Ganz ähnlich können tierische Produkte aus Höflichkeit konsumiert werden, etwa im Rahmen einer Einladung bei Freunden oder Bekannten, bei der man den ohnehin schon bemühten und großzügigen Gastgebern weitere Komplikationen ersparen möchte. Wer trotz alledem an seinen moralischen Prinzipien festhält, der riskiert, sich in seinem sozialen Umfeld unbeliebt zu machen.

Auch der *Humane Research Council* betont die Wichtigkeit eines sozialen Netzwerks zur Aufrechterhaltung eines vegetarischen oder veganen Essverhaltens (Asher et al., 2014). Nicht nur kann ein solches Netzwerk die soziale Orientierung bereitstellen, die der Einzelneineiner neuen alimentären Welt benötigt; es reduziert gleichsam das potenzielle Spannungspotenzial, welches ein omnivores Umfeld darstellt und die diätetischen Absichten tierethisch motivierter Akteure ein ums andere Mal herausfordert. In einer repräsentativen Befragung in den USA gaben 82% aller befragten früheren Vegetarier und 71% der Veganer an, während der Ausübung dieser Esspraxen keine Einbindung in ein ähnlich orientiertes Netzwerk gehabt zu haben. Sie betrachten diese Tatsache als Hauptschwierigkeit in ihrem Versuch, diese Ernährungsformen langfristig zu etablieren (ebd.). »Essmuster sind [schlichtweg] ein solch wichtiger Bestandteil des alltäglichen Lebens […], dass deren

Veränderung signifikante Auswirkungen auf die sozialen Beziehungen haben kann« (Beardsworth & Keil, 1992, S. 276). Dessen werden sich viele freilich erst bewusst, wenn sie ihr eigenes Essverhalten an ihre moralischen Ansprüche anzupassen versuchen.

(3) Daran knüpft schließlich die dritte Schwierigkeit an, welche mit einem Verzicht auf tierische Produkte verbunden ist, nämlich die Infragestellung sozialer Identitäten der Akteure. Aus dem zuvor Gesagten resultiert bereits, dass Essmuster Gegenstand gruppen- oder milieuspezifischer Normen und Codes sein können, deren Befolgung über Zugehörigkeit oder Ausschluss zu ebendiesen Kreisen entscheidet. Sozio-identitäre Vorstellungen spielen allerdings auch auf einer globaleren Ebene eine Rolle. In der Forschung wurden vor allem Status- und Geschlechtskonstrukte als Erklärung eines tierproduktbasierten Essverhaltens diskutiert, auf die ich im Folgenden kurz eingehen möchte.

Folgt man dem Kulturwissenschaftler Manuel Trummer (2014), »liegt der eigentliche Grund für die Beharrung auf Fleischspeisen jenseits aller ethischer, ökologischer und diätetischer Überlegungen« (ebd., S. 68) in der statussymbolischen Bedeutung, welche diesen Lebensmitteln innewohnt. Er zeigt auf, dass Fleisch in unterschiedlichsten historischen und kulturellen Kontexten ein zentrales Distinktionsmittel privilegierter gesellschaftlicher Schichten darstellte. Trummer bestätigt damit auch die vom Sozialanthropologen Nick Fiddes (1991) aufgeworfene These, der zufolge Fleisch nicht nur ein Symbol der menschlichen Kontrolle über die Natur, sondern in vielen Kulturen auch als Ausdruck der Macht insbesondere männlicher Eliten fungiert.[10] Daran anknüpfend haben verschiedene Autoren beschrieben, wie Distinktionslogiken auch heute noch individuellen Esspraxen zugrunde liegen. Zwar ist einerseits feststellbar, dass in Industrie- und einigen Schwellenländern Menschen mit höherer Bildung und stärkerem Einkommen weniger Tierprodukte und stattdessen mehr pflanzliche Lebensmittel verzehren (Gossard & York, 2003; Uzunöz & Karakas, 2011; Clonan et al., 2016); auch die stark anwachsende vegetarische Bevölkerung rekrutiert sich vorallem aus einer gebildeten Mittelschicht (Schwarz, 2005; Grube, 2006) und scheint damit der These der statussymbolischen Bedeutung vor allem von Fleisch zu widersprechen. Andererseits weisen Studien zum Essverhalten in sozioökonomisch schwächeren Milieus einen durchschnittlichen erhöhten Fleischkonsum nach und betonen, dass Tierprodukte in diesen gesellschaftlichen Bereichen ihre prestigereiche Bedeutung nicht verloren haben (Gossard & York, 2003; Frauenfelder, 2008). Dafür spricht ebenfalls der weiterhin steigende Fleischkonsum in den meisten Schwellen- und Entwicklungsländern (Clonan et al., 2016), und dies über sozioökonomische Grenzen hinweg (z.B. Phuongetal., 2014). Obgleich sich also tierethische, ökologische und gesundheitliche Bedenken gegenüber dem Tierproduktkonsum in der Bildungsschicht westlicher Gesellschaften verbreiten und damit den statussymbolischen Wert dieser Produkte infrage stellen, ist dieser Wert für weite Teile der Bevölkerung weiterhin relevant (Kofahl & Weyand, 2016). Als solcher steht er einer moralisch-affektiv inspirierten Absicht eines Verzichts auf tierliche Produkte entgegen.

10 Ich möchte den Gutachter_innen für den Hinweis danken, dass der Zusammenhang zwischen Fleisch und sozialem Status trotz seiner raum-zeitlichen Verbreitung keineswegs notwendig ist. In Indien zum Beispiel ist gerade der Fleischverzicht Ausdruck eines gehobenen sozialen Status (Spencer, 1993; Preece, 2008).

Auch Geschlechterkonstruktionen haben einen wesentlichen Einfluss auf das Essverhalten. Dabei ist sich die gegenwärtige Forschung weitestgehend einig, dass Fleischkonsum im Westen als Ausdruck von Männlichkeit gilt (Adams, 1990; Ruby & Heine, 2011; Gutjahr, 2012), männliche Akteure einen signifikant höheren Fleischkonsum aufweisen (Kalof et al., 1999; Verbeke & Vackier, 2004; Clonan et al., 2016) und schließlich diesen Konsum vehementer zu rechtfertigen versuchen als Frauen (Rothgerber, 2012). Die Sozialpsychologen Matthew Ruby und Steven Heine (2011) haben beispielsweise gezeigt, dass Vegetarier von anderen tendenziell als weniger männlich wahrgenommen werden als Fleischesser. Die Soziologin Julia Gutjahr (2012) exemplifiziert anhand einer Analyse der Koch- und LifestyleZeitschrift *BEEF*, wie in medialen Kontexten Männlichkeitsstereotype der Macht und Potenz systematisch inszeniert und an den Konsum tierischer Produkte geknüpft werden, während man pflanzliche Lebensmittel und deren Konsum feminisiert. Auch der Psychologe Hank Rothgerber (2012) konnte in einer quantitativen Studie nachweisen, dass »maskuline Normen wie Stoizismus, Härte, emotionale Reserviertheit, Stärke, Athletik und Dominanz« (ebd., S. 8) erstens häufiger von Männern vertreten werden und zweitens auch mit einem deutlich erhöhten Fleischkonsum einhergehen. In derselben Studie demonstriert Rothgerber auch, dass solche Normvorstellungen auch mit einer erkennbaren Tendenz zu Rationalisierungen des Konsums tierischer Produkte verknüpft sind. Wenn man sich daran erinnert, dass die Rationalisierung eine Strategie zur Dissonanzreduktion darstellt, zeigen diese Ergebnisse in besonderem Maße, wie eine fleischfreie Ernährung direkt die identitären Vorstellungen von Männlichkeit gefährden kann. Dies gilt umso mehr, je mehr die Auslebung ebensolcher Geschlechtskonstruktionen vom sozialen Umfeld eingefordert wird (Nath, 2011).

Als Resümee dieses Abschnitts lässt sich festhalten, dass der Verzicht auf tierische Produkte mit einer Reihe von sozialen Hürden einhergeht. Eine Anpassung des Essverhaltens an eigene Moralvorstellungen vermag zwar die aus der Sekundärerfahrung resultierenden Dissonanzen aufzulösen; sie kann allerdings mit neuen Spannungen einhergehen, die den Einzelnen vor nicht minder große Probleme stellen. Daraus folgt, dass insbesondere für Menschen ohne ein entsprechendes unterstützendes Umfeld eine vegetarische oder vegane Ernährungsweise eine echte Herausforderung darstellt. Die Rationalisierung bietet hier zumindest kurzfristig einen einfacheren Weg, sich etwaiger emotionaler Unannehmlichkeiten zu entledigen.

5. Das Selbstbild auf dem Prüfstand

Ich habe in den vorangegangenen Abschnitten plausibilisiert, wieso Akteure auf Rationalisierungsstrategien ihres Essverhaltens zurückgreifen, anstatt Letzteres an ihre eigenen moralischen Ansprüche gegenüber Tieren anzupassen. Dabei habe ich bewusst darauf verzichtet, den Inhalt dieser Rationalisierungen in den Blick zu nehmen. Gemäß der hier verwendeten Definition (siehe Fußnote 6) bezeichnet »Rationalisierung« zunächst lediglich die Generierung von Gründen zur Rechtfertigung des eigenen Handelns. Insofern wäre denkbar, dass Vertreter des Fleischparadoxes zur Erklärung ihrer Ernährungspraxen die bereits erwähnten emotionalen und sozialen Hindernisse zur Sprache bringen, welche sie davon abhalten, auf tierische Produkte (teilweise) zu verzichten. Wie die Forschergruppe um Jared Piazza (2015) allerdings gezeigt hat, beziehen sich solche Erklärungen zumeist auf die »4N's«, das heißt, es wird argumentiert, dass der Konsum von Fleisch natürlich

(natural), notwendig (necessary), normal und lecker (nice) sei.[11] Wie lässt sich diese Diskrepanz erklären? Zur Beantwortung dieser Frage werde ich in diesem Abschnitt die zuvor begonnene Identitätsdiskussion vertiefen.

Der Identitätsbegriff ist in der psychologischen und soziologischen Forschung ein viel diskutierter Gegenstand, entsprechend vielseitig sind auch dessen Konzeptualisierungen. Für die folgenden Überlegungen hilfreich ist die Begriffsdefinition des Soziologen Guy Bajoit (2003). Bajoit argumentiert, dass sich die persönliche Identität aus drei Dimensionen zusammensetzt, nämlich (1) der zugeschriebenen, (2) der performativen und (3) der gewünschten Identität. Die erste Dimension betrifft die Vorstellungen, welche das Individuum von den Erwartungen hat, die das soziale Umfeld ihm gegenüberstellt. Hierbei spielt es keine Rolle, ob diese Vorstellungen mit den tatsächlichen Erwartungen anderer korrespondieren oder nicht; entscheidend ist, dass sie für den Akteur handlungsleitend werden, wo dieser die Anerkennung anderer für sein Tun anstrebt. Die zweite Dimension umfasst die vom Akteur tatsächlich an den Tag gelegten Handlungen, seine sozialen Einbindungen sowie die kommunizierten Logiken, mit welchen er sein nach außen sichtbares Wirken begründet. Die dritte Dimension beschreibt schließlich die Wunschvorstellungen, welche der Akteur von sich selbst und seiner Wahrnehmung im sozialen Umfeld hat. Wichtig ist, dass die einzelnen identitären Dimensionen zusammen kein kohärentes Ganzes konstituieren müssen. Die persönliche Identität ist mithin immer ein potenziell widersprüchliches Konstrukt.

Auch der Sozialpsychologe Elliot Aronson (1969) hält fest, dass persönliche Identitätskonstruktionen interne Widersprüchlichkeiten aufweisen können. Entscheidend an Aronsons Position ist allerdings, dass er diese Widersprüchlichkeiten mit der bereits angesprochenen Theorie der kognitiven Dissonanz verknüpft. Nach ihrem Begründer Leon Festinger besagt diese bekanntlich, dass die Unvereinbarkeit zweier Interessen emotionale Spannungen hervorruft. Aronson zufolge fehlt es der Theorie allerdings an Kriterien, wann genau zwei Interessen tatsächlich unvereinbar sind. Genau diese Kriterien führt er nun durch das Identitätskonzept in die Dissonanztheorie ein. Gemäß Aronson können nämlich widersprüchliche Interessen nur dann dissonanzevozierend wirken, wenn sich daraus auch eine Gefährdung des Selbstbilds, das heißt der Wahrnehmung der eigenen Identität ergibt. Identitäre Inkohärenzen stellen gerade solche Gefährdungen dar und konstituieren gemäß Aronsons Untersuchungen im Moment ihrer Bewusstwerdung eine zentrale Quelle emotionaler Unannehmlichkeiten.

Diese theoretische Grundlage ist nun zum Verständnis des Fleischparadoxes gleich in zweifacher Hinsicht relevant. Erstens öffnet sie den Blick auf die identitären Prozesse, die mit einer Veränderung der Ernährungsgewohnheiten einhergehen. Wie angesprochen lassen sich Bajoits Identitätsdimensionen sehr gut anhand des Essverhaltens darstellen. Die (subjektiv wahrgenommenen) sozio-alimentären Erwartungen repräsentieren dabei die zugeschriebene Identität; das tatsächliche Essverhalten mitsamt den damit einhergehenden Erklärungen stellt die performative Identität der

11 Der Vollständigkeit halber sei noch einmal erwähnt, dass die Verneinung mentaler Fähigkeiten von Tieren auch eine Rationalisierung darstellt, die von den diskutierten Erklärungsansätzen abweicht (Loughnan et al., 2010; Rothgerber, 2014).

Akteure dar; die gewünschte Identität ist schließlich charakterisiert durch die Intention, das eigene Essverhalten an die moralischen Vorstellungen anzupassen und damit die performative Identität umzugestalten. Nun sind es aber gerade die konkreten Handlungen und kommunizierten Einstellungen, in welchen das Individuum seine persönliche Identität nach außen trägt. In der Wiederholung dieser Außendarstellung liegt gewissermaßen die Bedingung der Möglichkeit der sozialen Wiedererkennung und das heißt der sozialen Anerkennung als Individuum. Insofern steht der Einzelne vor dem Paradox, diejenige Seite von sich zu ändern, welche ihm gerade die soziale Anerkennung gewährleistet. Je zentraler das Essverhalten für den einzelnen Akteur ist und je vehementer er dieses in der Vergangenheit zu rechtfertigen pflegte, umso sichtbarer wird dieses Paradox, umso schwerer wird es, sich von der über Jahre hinweg entwickelten, performativ-alimentären und der damit einhergehenden zugeschriebenen Identität zu lösen (Becker, 1960). Eine Veränderung des Essverhaltens würde unweigerlich auch auf die soziale Wahrnehmung des Einzelnen Einfluss nehmen und auf diese Weise auch seine zugeschriebene Identität unterminieren. Daran wird noch einmal deutlich, dass eine vegetarische oder vegane Ernährungsweise mehr verlangt als den bloßen Verzicht auf tierische Produkte. Eine derartige alimentäre Umstellung geht mit einer identitären Transformation einher, welche die Konfrontation mit den vielfältigen Widersprüchen des Selbstbilds verlangt (Carmichael, 2002).

Die Ausgangsfrage dieses Abschnitts war allerdings, wie die Diskrepanz zwischen den zuvor diskutieren Erklärungsansätzen des Fleischparadoxes einerseits und den häufig vorgebrachten Rationalisierungen von Repräsentanten ambivalenter Ernährungspraxen andererseits zu verstehen ist. Hier nun liegt die zweite Relevanz der vorgetragenen Überlegungen zum Identitätsbegriff. Wie ich im dritten Abschnitt erläutert habe, liegt der Ursprung der subjektiven Problematik des Fleischparadoxes in der Sekundärerfahrung, welche der Einzelne im Hinblick auf tierische Produkte macht. Aus dieser Erfahrung resultiert die Einsicht in die Implikationen des Konsums tierischer Produkte für das Leben anderer Lebewesen. Die Sekundärerfahrung ist ein potenziell dissonanzreiches Moment für die sozialen Akteure, weil mit ihr ein Bewusstsein für die Widersprüchlichkeit zwischen den praktischen Konsequenzen des Essverhaltens und den eigenen tierethischen Vorstellungen einhergeht.

Diese Bewusstwerdung zieht unweigerlich eine identitäre Dissonanz nach sich. Sie macht nämlich den Widerspruch sichtbar, welcher zwischen der performativen Identität einerseits und der gewünschten Identität andererseits klafft. Die gewünschte Identität umfasst dabei freilich nicht nur die eventuelle Absicht, ein Essverhalten an den Tag zu legen, welches kein Leid für andere Lebewesen bedeutet; sie umfasst das Ensemble normativer Selbstvorstellungen, an welchem der Akteur sein Handeln und die zugrunde liegende Einstellungsebene orientiert bzw. orientieren möchte. Im Vollzug der Sekundärerfahrung wird er sich nun der Diskrepanz gewahr, welche zwischen seinem Wunschbild und der im Handeln faktisch dargestellten Identität liegt.

Das empirische Material aus Frank (2014) legt nun nahe, dass diese Diskrepanz die eigentliche Ursache der emotionalen Unannehmlichkeit zu sein scheint, mit welcher sich Vertreter des Fleischparadoxes konfrontiert sehen. Ein anschauliches Beispiel dafür liefert die 23-jährige Greta, eine meiner Interviewpartnerinnen. Auf die Frage, inwiefern sie den Verzehr tierischer Produkte als problematisch empfindet, antwortete sie:

> *»In dem Moment, wo ich mir wirklich bewusst mache, was ich esse […] empfinde ich meine Ernährung als problematisch. Wenn ich an all die Tiere denke […], dann ist das selbstverständlich ein Problem. Ich bin der Meinung, dass alle Lebewesen in Freiheit leben sollten, von daher ist ein solcher Moment wirklich schwierig.«*

Hier schildert Greta also zunächst das emotionale Konfliktpotenzial, welches aus der Sekundärerfahrung resultiert. Dem liegt allerdings eine tieferliegende Schwierigkeit zugrunde: »Das eigentliche Problem ist die Tatsache, dass dieses Leid durch dich als Konsument von Fleisch erzeugt wird, dass du gleichzeitig die Ursache und der Nutznießer dieses Leids bist«. Genau dies ist für einen Menschen mit eigentlich guten Absichten freilich nicht leicht zu ertragen. Greta gesteht deshalb: »Ich habe Angst davor, die Wahrheit zu kennen, zu wissen, was ich esse, […] über all das Leid der Tiere Bescheid zu wissen«.

Besonders brisant wird eine solche Einsicht dann, wenn sie mit der Unfähigkeit einhergeht, seine performative an die gewünschte Identität anzupassen, das heißt also sein Essverhalten an die eigenen Moralvorstellungen anzugleichen. Der 25-jährige Asen illustriert einen solchen Fall. Im Rahmen unseres Interviews machte Asen die Wichtigkeit deutlich, die persönliche Unabhängigkeit und Individualität insbesondere auch im Hinblick auf sein eigenes Essverhalten besitzen: »Mein soziales Umfeld ist [in dieser Hinsicht] nicht sonderlich bedeutsam für mich. Meine Entscheidung ist meine Entscheidung, und ich empfinde es nicht als schwierig, diese auch gegen mein soziales Umfeld durchzusetzen«. Dies ist unter anderem auch ein Grund, weshalb er bis dato – entgegen seiner tierethischen Überzeugungen – keine vegetarische Ernährung verfolgt: »Vegetarier machen mir zum Vorwurf, Fleisch zu essen. […] Menschen, die mich auf irgendeine Weise von etwas überzeugen wollen, machen mich grundsätzlich vorsichtig«. Seine omnivore Ernährungspraxis entspringt also demzufolge seiner individuellen Entscheidung. Dem steht gegenüber, dass sich Asen in einer stark karnistisch geprägten Umwelt bewegt, in welcher sein »Vater[12] meist darüber entscheidet, was gegessen wird« und in der »sein Freund einen Burger zubereitet und es schwierig ist, darauf zu verzichten«, weil er gern Fleisch mag. Asen denkt auch, dass »die kapitalistische Gesellschaft mit einem gewissen ökonomischen Absolutismus einhergeht«, welche ihn zu bestimmten Entscheidungen zwingt. Nicht zuletzt ist er sich bewusst, dass Fleischkonsum »Teil seiner Tradition« ist, weshalb »seine Gesellschaft es insgesamt schwierig macht, eine vollkommen vegetarische Ernährung zu verfolgen«. Dies sind freilich nicht die Hindernisse, mit welchen Asen sein persönliches Essverhalten erklärt. Dafür müsste er sich nämlich zuallererst eingestehen, dass seine performative Identität deutlich stärker von den gesellschaftlichen Erwartungen beeinflusst und damit seine Individualität und Unabhängigkeit mehr eingeschränkt wird, als er es sich wünschen würde (Abb. 2).

12 Asen lebt mit seinem Vater zusammen.

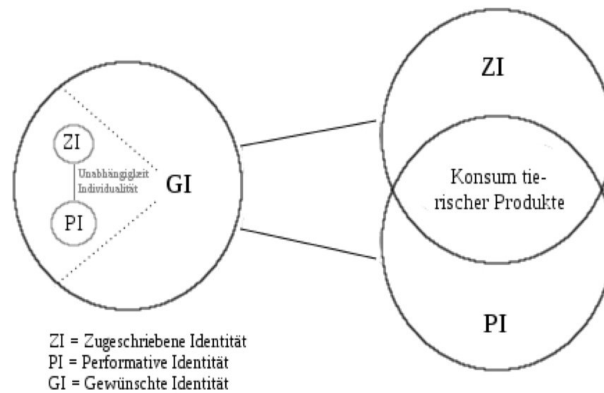

Abb. 2: Diskrepanz zwischen gewünschter (GI) und performativer identität (PI).

Hier nun liegt der Grund für die Abweichung zwischen den bereits diskutierten Erklärungsansätzen und den zumeist vorgebrachten Rationalisierungen des Fleischverzehrs: Die Rationalisierung infolge der Dissonanz hat die psychologische Funktion, das emotionale Unbehagen zu reduzieren, dessen sich das Individuum angesichts der Sekundärerfahrung bzw. der nicht umsetzbaren Anpassung des Essverhaltens als Reaktion auf diese Erfahrung ausgesetzt sieht. Zur Auflösung dieses Unbehagens wäre es prinzipiell auch möglich, die performative an die gewünschte Identität anzugleichen. Wie allerdings gesehen würde dies die Bereitschaft erfordern, sich weiteren emotionalen Spannungen als Folge des angestoßenen identitären Wandelns zu stellen. Die Rationalisierung bietet demgegenüber eine kurzfristige Möglichkeit, sich solchen Problemen zu *formativer Identität (PI)*

entziehen. Dafür werden Gründe und Rechtfertigungen herangezogen, die die Diskrepanz zwischen performativer und gewünschter Identität verdecken. Diese lenken dadurch von der Dissonanz und deren eigentlichen Ursachen ab. Sie bringen stattdessen neue Argumentationsfiguren hervor, die ihre Plausibilität allerdings erst vor dem Hintergrund der angestrebten Dissonanzreduktion gewinnen.

6. Schluss

Auf den vorangegangenen Seiten bin ich der Frage nachgegangen, wieso viele Menschen ihr Essverhalten rationalisieren, anstatt Letzteres an moralische Ansprüche gegenüber Tieren anzupassen. Ich habe die These entfaltet, der zufolge eine Anpassung des Essverhaltens an tierethische Ansprüche mit einer Reihe emotionaler, sozialer und identitärer Herausforderungen verbunden ist. Akteure, welche aus moralischen Gründen auf den Konsum tierischer Produkte verzichten möchten, müssen sich (1) zunächst den faktischen Konsequenzen der Tierproduktion auf das Wohl anderer Lebewesen stellen, (2) ihr angepasstes Essverhalten in einer karnistisch geprägten Gesellschaftauch gegen Widerstände durchsetzen und (3) auch die identitären Konflikte aushalten, welche sich aus einem veränderten Essverhalten ergeben. Für viele Akteure sind diese Implikationen nicht tragbar. Sie greifen deshalb auf Rationalisierungsstrategien zurück, um die kognitive Dissonanz als Folge des paradoxen Essverhaltens zu reduzieren.

Meine These sollte nicht als allgemeingültige Erklärung für den Konsum tierischer Produkte verstanden werden. Sie impliziert auch weder, dass ein solcher Konsum grundsätzlich irrational (oder umgekehrt der Verzicht auf denselben grundsätzlich rational ist), noch behauptet sie, dass alle Menschen, die trotz moralischer Bedenken Tiere verzehren, notwendig auf dissonanzreduzierende Rationalisierungen zurückgreifen. Sie unterstellt auch nicht, dass die Vermeidung negativer Emotionen eine Art anthropologische Konstante darstellt und Menschen nicht auch in der Lage wären, solche Sensationen ohne sofortiges Bemühen um deren Auflösung auszuhalten. Sehr wohl aber behauptet sie, dass wir genau dieser Tendenz allzu häufig verfallen. Im Vollzug der Nichteinhaltung persönlicher moralischer Ansprüche führt dies dann zum Phänomen, dass wir Plausibilisierungen mobilisieren, deren subjektiv empfundene Richtigkeit nicht ihrer epistemischen Qualität geschuldet ist. Wenn wir das ernsthafte Anliegen verfolgen, die Diskrepanz zwischen moralischen Ansprüchen und tatsächlichem Handeln zu reduzieren, sollten wir diese Tendenz genau im Blick haben und die Fähigkeit kultivieren, etwaige emotionale Unannehmlichkeiten zuallererst zu ertragen, bevor wir uns um deren Auflösung bemühen. Ein Leben im Einklang mit persönlichen Moralvorstellungen ist mit vielen Herausforderungen verbunden. Am Beispiel des Konsums tierischer Produkte zeigen aber inzwischen Millionen von Vegetariern, Veganern, sowie eine wachsende Anzahl sogenannter »bewusster Fleischesser« (Rothgerber, 2015), dass diese Herausforderungen zumindest partiell zu bewältigen sind. Vertiefende Untersuchungen dieser Populationen können vielleicht dabei helfen, deren Strategien besser zu verstehen und somit zur allgemeinen Steigerung moralischer Konsistenz verfügbar zu machen. Möglicherweise können solche Studien auch dazu beitragen, andere Handlungsbereiche moralischer Inkonsistenzen für Veränderungen zugänglich zu machen, in denen Rationalisierungstendenzen einer Auslebung individueller ethischer Ansprüche im Wege stehen.

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9.2. Education for Sustainable Consumption through Mindfulness Training: Development of a Consumption-Specific Intervention

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Abstract

Several widespread approaches to Education for Sustainable Consumption (ESC) have emerged from the tradition of consumer information. A major shortcoming of such cognitive-focused approaches is their limited capacity to facilitate reflection on the affective processes underpinning people's engagement with consumption. More holistic pedagogies are thus needed to increase the effectiveness of ESC. The concept of mindfulness has recently received growing attention in research on sustainable consumption, given its potential to address both cognitive and affective processes and to stimulate reflection on the drivers of often routinized consumption practices. Despite this recent interest, mindfulness has to date not been systematically connected to ESC. This paper provides a reflexive case study of the development of mindfulness-based intervention (MBI) specifically tailored to ESC ("BiNKA-training"). It elaborates the conceptual connections between mindfulness and ESC, offers insights into the process of adapting MBI to ESC and concludes with lessons learnt and an outlook on future work seeking to tap the potential of MBIs to form more holistic approaches to sustainability education.

Keywords: education for sustainable consumption, mindfulness-based stress reduction, curriculum development, mindfulness, ethics, sustainable consumption, values, intervention design.

1. Aim of the Paper

This paper provides a reflexive case study of the development of a mindfulness training programme specifically tailored to the context of Education for Sustainable Consumption (ESC), the so-called BiNKA-training. The training is a core element of the research and development project BiNKA (German acronym for "Education for Sustainable Consumption through Mindfulness Training") set out to empirically investigate the relationship between mindfulness and sustainable consumption with an intervention study.

The first section of the paper provides some background by discussing the relevance of mindfulness for ESC. The second section describes the research in the foundational phase. A critical step in this phase of the development process was the selection of adequate components from the two fields of mindfulness-based interventions (MBIs) and ESC that were then to be assembled to create a

consumption-specific MBI. The third section expands on how the findings of the previous phases were integrated and used to build, test and revise the prototype of the BiNKA-training. The final design and curriculum of the training is presented that has resulted from this process. The paper concludes by offering some critical reflections of the development process, lessons learnt in this transdisciplinary endeavour and ways forward for future work in this field.

2. Mindfulness and Education for Sustainable Consumption: Making the Connection

The nexus of education, consumption and sustainable development has been at the top of the agenda since the very inception of the political process towards sustainable development at the Rio Conference in 1992. Today, 25 years later, both education for sustainable development (ESD) and sustainable consumption (SC) are prominently addressed as distinct Sustainable Development Goals (numbers 4 and 12) in the United Nations' post-2015 agenda (United Nations, 2015). Education for Sustainable Consumption has emerged as a field of scholarship, policy and educational practice that aims at connecting the discourses around consumer education, ESD and sustainable consumption (Adomßent et al., 2014). ESC extends the scope of traditional consumer education approaches that were guided by the ideal of the informed consumer and consequently emphasised awareness raising and the transmission of information and knowledge to foster individual behavioural change (McGregor, 2005). With ESC comes a greater appreciation of and engagement with notions such as civic agency and citizenship, ethical considerations (e.g., good life, responsibility) and the overall aim to strengthen the capacity of consumers to contribute to a broader societal transformation towards sustainable development. This reorientation went alongside the development of more comprehensive learning outcomes that had been conceptualized as key competencies for sustainable consumption (Fischer & Barth, 2014; Rieckmann, Mindt, & Gardiner, 2017). Key competencies as learning objectives in ESC seek to (1) nurture cognitive, motivational and volitional dispositions, (2) are guided by the idea of critical, selfdetermined and self-reflexive individuals and (3) promote the capacity of learners to actively and responsibly contribute to advancing overall societal progress towards sustainability. To this end, it facilitates the deliberative processes underpinning social change, instead of simply pursuing behavioural change as a primary educational objective (for a more comprehensive discussion see Fischer & Barth, 2014). A major task for research in ESC is thus to advance learning settings that effectively address both cognitive and affective learning outcomes and promote a reflexive engagement with sustainable consumption challenges. Given the predominance of cognitive approaches in traditional consumer education, there is a strong need to advance a deeper engagement with affective processes in ESC.

Mindfulness has the potential to support this endeavour and strengthen ESC in multiple ways. It is defined here as the unbiased awareness that emerges through intentionally and continuously paying attention to subjective momentary experience with an open, accepting, benevolent, and compassionate attitude (Boehme et al., 2016). The concept of mindfulness has been increasingly researched in recent years, originally mainly in the clinical context, expanding into behavioural research (for more information see Bowen et al., 2006; Grossman, Niemann, Schmidt, & Walach, 2004) and beyond science into multiple societal areas, e.g., education (see, e.g., Mindfulness All-Party Parliamentary Group, 2015).

In general, mindfulness is considered to bear the potential to bring together cognition and affection, thus extending and complementing dominating concepts of ESC. It is seen to encompass the reflection of individual values and actions in each given moment and therewith to potentially strengthen people's ability to deliberatively focus their mind in a way that they become more sensitive for their own values, emotions and ensuing actions. This ability would promote the alignment of intentions with actual behaviour and consequently the adaption of actions towards more sustainable consumption patterns. The ongoing, mainly conceptual discussion of how mindfulness can promote positive changes in consumption behaviour and support (E)SC will be summarised in the following four main potential mechanisms of change (for a more comprehensive review of the current literature see Fischer et al., 2017):

(1) *Disruption of routines* or switching off the autopilot (Grossman et al., 2004) by enhancing introspective capacities and thus providing the grounds for changing previously unconscious routines is a broadly recognised potential effect of mindfulness practice. For ESC this could mean that unconscious, non-sustainable consumption choices could be elucidated and diminished (Rosenberg, 2004; Bahl et al., 2016).

(2) Secondly, mindfulness practice is deemed to support an *enhanced awareness of immediate daily experiences.* In the current research, it has been shown to reduce self-perceived inattention to ones' own behavioural patterns which is associated with the attitude-behaviour-gap (Chatzisarantis & Hagger, 2007). That way, it is associated with a greater capacity to make more congruent choices that may potentially narrow the attitude-behaviour-gap and support more sustainable consumption patterns (Ericson, Kjønstad, & Barstad, 2014; Rosenberg, 2004).

(3) Mindfulness practice may thirdly be conducive to the *clarification of values and supporting the role of non-material values* in people's lives (Ericson et al., 2014). According to Buddhist psychology, mindfulness practice has the aim of counteracting unwholesome qualities (greed, delusion, aversion ñ which are frequently referenced in sustainability literature, too) by cultivating openness, generosity, kindness and mental clarity (Grossman, 2015). The fostering of such benevolent attitudes is also thought to increase individual well-being, which in turn is associated with an increase in intrinsic and socially oriented values and behaviour and a decrease in materialistic, hedonistic values (Kasser et al., 2014; Burroughs & Rindfleisch, 2002; Richins & Dawson, 1992).

(4) Lastly, the fourth mechanism refers to recent findings according to which *pro-social behaviours are explicitly increased through meditation practices* (Lim, Condon, & DeSteno, 2015; Leiberg et al., 2011). This process is seen to be initiated through the development of compassion (especially in otheroriented techniques such as loving-kindness/metta meditation) (Condon et al., 2013). Pro-social behaviour is consecutively positively linked to proenvironmental intentions and behaviour (Pfattcheicher et al., 2016; de Groot and Steg, 2008; Steg et al., 2014, in Fischer et al., 2017).

Despite the apparent conceptual connections and the increased interest of researchers, the potential of mindfulness for (E)SC so far remains a scarcely researched area (Rosenberg, 2004), even less so when it comes to intervention studies (Fischer et al., 2017).

3. Laying the Foundations

In the initial phase of development, both existing MBIs and potentially suitable ESC-formats were screened and reviewed to identify solid foundations to build the BiNKA-training on.

3.1. Mindfulness-Based Interventions

In recent years, numerous mindfulness-training formats have been conceptualised. One of the first tasks in developing the training was to analyse existing formats with regard to their suitability to serve the objectives of the proposed intervention. This analysis was predicated on seven criteria elaborated by the research team (see Harfensteller, 2016, for a more detailed discussion of the process). The MBI to be chosen should

(1) be empirically tested and validated;

(2) be multiple-week-long with daily individual practice as well as one longer session to account for the need of a regular meditation practice to induce physiological changes (Carmody & Baer, 2008);

(3) have a clear focus on mindfulness meditation instead of multiple/other meditation techniques, e.g., transcendental meditation;

(4) contain mostly exercises and practices that include experience-based knowledge and are highly applicable to and integrable into participants day-to-day-life (*daily-life focus*);

(5) provide the possibility for thematic combination of meditation practice with the topic of (sustainable) consumption (especially food and clothing) to allow for the integration of ESC elements (*consumption focus*);

(6) incorporate both cognitive and affective training units for key competencies that are deemed relevant to an experienced meditation teacher as well as current research on the topic of ESC (Carmody & Baer, 2008; Ericson et al., 2014; Fischer & Barth, 2014) (*BiNKA-training focus*);

(7) be specific to the project target groups (secondary school students, university students, employees) or be easily adaptable to them.

Table 1: Examples of MBIs Evaluated with Selection of Criteria for the BiNKA Curriculum

MBI	MBSR	MBCT	MSC
Name	Mindfulness-Based Stress Reduction	Mindfulness-Based Cognitive Therapy	Mindful Self-Compassion
Author/year	John Kabat-Zinn/1979	Zindel Segal & Mark Williams/2008	Kristin Neff & Christopher Germer/2015
Source	Umassmed.edu/cfm	Oxfordmindfulness.org	Centerformsc.org/meditations
Objective	Secular stress-reduction programme based on the four pillars of traditional	Programme for people with psychological ill-ness, mainly depression,	Programme to develop self-compassion and emotional resources for

	mindfulness practice	based on MBSR	healthy people, loosely based on MBSR
Time requirements	8 sessions à 2.5-3 hrs, 1 session 4 hrs, 45 min. individual practice, 6 times a week	8 sessions à 2.5 hrs, 1 session 4 hrs, 45 min. individual practice, 6 times a week	8 sessions à 2.5 hrs, 1 session 4 hrs, 30 min. individual practice, 7 times a week
Consumption focus	Mindful eating exercise on the Day of Mindfulness	Not observed	Not observed
Daily-life-focus	Diary of pleasant and unpleasant daily situations	Exercise „Walking the strees“ mindfully, group reflection	Exercise „Promise to myself“, reflect on priorities in everyday life and learn to focus on them
BiNKA-training focus	(1) Self-acceptance, trust and gratefulness are repeadetly addressed (2) Exercise to eat a meal mindfully and observe what you really need	Not observed	(1) Dealing with (difficult) feelings is at the core of the training (2) Raising awareness of one's own needs

Mindfulness-Based Stress Reduction (MBSR) was chosen as the format most suitable according to the selection criteria. The programme was developed in 1979 at the Centre for Medicine, Health Care and Society of the Massachusetts University Medical School by Jon Kabat-Zinn, originally for the treatment of chronic pain patients. It runs for 8-10 weeks, with typically a single 2.5-3-hour group session a week, one additional allday session and individual 45-min daily meditation practice, mindful yoga exercises, and informal mindfulness in daily live (Kabat-Zinn, 1991).

The format is most widely used and validated in mindfulness research to date and its effects have been repeatedly confirmed in multiple studies with healthy and clinical populations (Grossmann, 2004; Creswell, 2017). In light of this, the MBSR format is considered a solid benchmark for effective mindfulness trainings. Furthermore, despite its secular focus, it is closely aligned with the traditional Buddhist understanding of mindfulness and comprises all conventional mindfulness practices (Kabat-Zinn, 2011). Another reason for prioritising MBSR over the other available formats is the programme suitability for more than one target group as well as the possibility for adapting it to different thematic contexts. As shown in the development of Mindfulness-Based Cognitive Therapy (MBCT, Teasdale et al., 2000), it is possible to accommodate didactic and content in the MBSR programme structure without compromising the major aim of developing mindfulness competency.

3.2. Education for Sustainable Consumption: Formats

The development of the BiNKA-training was further implemented by a review of different ESC formats (Fischer, 2016). Rather than achieving comprehensiveness, the review sought to identify different educational formats that could be of use for adapting general mindfulness training to the specific thematic and institutional contexts of the BiNKA-Training. In the review, educational formats were defined as distinct practical approaches used in pedagogical work to foster learning processes in

the field of sustainable consumption. Such practical approaches may comprise assignments, exercises and other learning activities that include specific requests to learners. Educational formats were considered relevant when they were compatible with:

(1) the distinct time limitations imposed by the format of an 8-week mindfulness training;

(2) the thematic scope of the mindfulness training that was focused on reflection of needs and personal development as well as on consumption in the areas of food and clothing;

(3) the distinct populations targeted in the BiNKA-training (secondary school students, university students, employees); and

(4) the competence orientation of the mindfulness training that focused on awareness, reflection and sensations.

Educational formats were collected from the two most prominent strands in ESC: consumer education and ESD. Data was collected from two popular German reference databases for learning materials from both strands (www.bne-portal.de and www.materialkompass.de). The selected formats were then clustered according to two aspects: their thematic focus (*happiness and needs*, *food and clothing*, *consumption and advertising* and *personal development*) and the competencies primarily addressed by the formats (*awareness of problems and one's individual impact on them*, *personal values, norms and needs* and *aspects of external and self-determination)*. The clusters were not meant to be distinct, but rather indicated emphasis on the materials reviewed. As a result of the review, several educational formats from the field of ESC with different thematic and competence-related foci were identified (see examples in Table 2).

Table 2: Examples of Potentially Relevant ESC Educational Formats for the BiNKA Curriculum

Educational format	Needs analysis	Food diary	Brands make friends	I am OK
Type	Group exercise	Written task	Creative design	Self-reflection
Objective	To reflect human needs and strategies of need satisfaction	To document nutrition behaviour and reflect on it	To raise awareness of how branding has been internalised	To gain confidence in one's own capabilities
Description	Learners work on guiding questions to identify strategies used to meed needs	Learners observe and record their eating practices for a defined time period	Learners dress a person on paper with branded fashion items and discuss it	Learners describe positive changes accomplished from a future retrospective
Time requirements	90 minutes	60 minutes	25 minutes	30 minutes
Competence focus	Personal values, norms and needs	Awareness of problems and one's individual impact on them	Aspects of external and self-determination	Personal values, norms and needs
Thematic focus	Happiness and needs	Food and clothing	Consumption and advertising	Personal development

4. Developing the BiNKA-Training

As the development of the training has undergone through numerous stages that may prove relevant for further development of similar interventions, the following part describes the decisions that have formed the design of the final curriculum in some greater detail. After that, the final curriculum is presented.

4.1. Development: Finding the Balance

A major challenge in the process of developing the training was to find the balance between mindfulness elements (both cognitive and affective) and ESC elements (that are mostly cognitive-based) compromising neither the key practice of mindfulness, nor the educational requirements of ESC (see Figure 1).

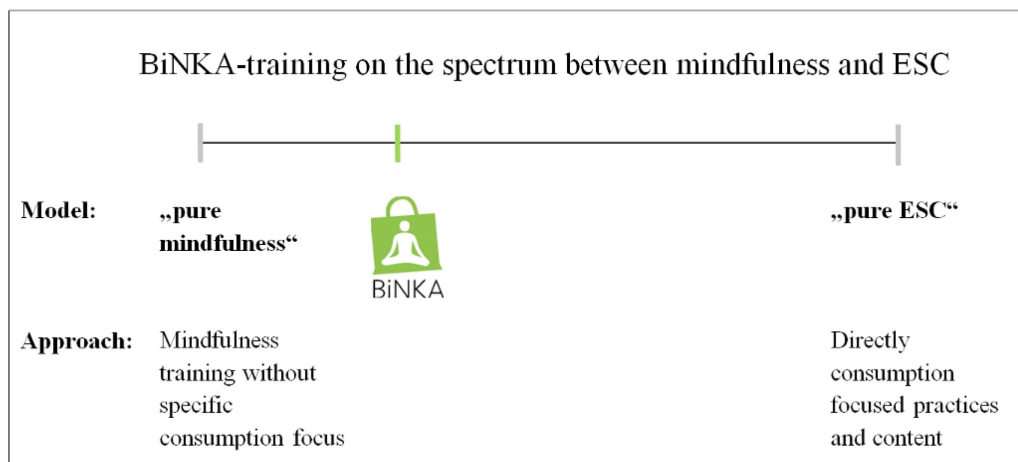

Figure 1: BiNKA-training on the spectrum between mindfulness and ESC.

The initial consideration of potentially valuable ESC elements for the BiNKA-training, as well as the most suitable foundation of a mindfulness programme was subject to a thorough discourse in the transdisciplinary project team. Psychologists, ESC and sustainability experts as well as mindfulness experts from both theory and practice discussed the preliminary results of the reviews of the prior development phase and mutually decided on keystones for the subsequent development steps.

A persistent controversy was surrounding the question of blending and balancing ESC and mindfulness elements. On one side of the controversy, there was an assumption that adapting the training too little and remaining too close to "pure mindfulness" would hardly impact consumption-related attitudes and behaviours. On the other hand, it was argued that adapting the original MBSR format too much toward "pure ESC" training would diminish the benefits associated with a certain intensity of mindfulness training and reliance on a regular and consistent practice. What was agreed upon was that the explicit intention of the training was to make people consume in a more sustainable way, according to *their own* consumption-related values. The mean for propelling that change was

primarily the cultivation of introspective capacities, potentially leading to an increased awareness of one's needs and (partially unconscious) consumption patterns. A risk was seen in the provision of too overtly consumption-related information, as this might potentially confound these intrinsic values with extrinsic normative ideas. Moreover, there would have been a risk of participants perceiving the training as intrusive, or even manipulative, in the sense that they felt pushed to consume in a certain way when presented with a lot of fact-based ESC input. Consequently, it was decided to limit the conveyance of such input within the training to a minimum. Another aspect in support of this decision referred to the evaluation of possible effects of the training. A high dose of ESC fact-based input would have made it impossible to attribute measured changes in consumption behaviour to mindfulness practice. However, as the main objective underpinning the research project was to elucidate the potential of mindfulness to promote the acquisition of key competencies and foster sustainable consumption, it was decided to orientate the training closer towards classical mindfulness training than an ESC course.

4.2. Initial Training Blueprint

For the construction of the BiNKA-training, several adaptations of the traditional MBSR format were needed. Firstly, in order to meet the practical constraints of the target groups (especially the employees at their companies and the secondary school students at school), the sessions were shortened from 150 to 90 minutes as well as the daily practice from 45 to 20 minutes for adults and 15 minutes for secondary school students, respectively. Secondly, the selected ESC as well as consumption-specific mindfulness elements had to be included in the training. Thus, some MBSR-specific content had to be eliminated in order to make space for ESC elements in an already diminished time frame, which led to a fundamental restructuring of the entire training. On the grounds of the initial analysis and the ensuing team debates, the MBSR teacher team developed a first detailed blueprint of the training, which was presented to the entire research team and, after minor adjustments, piloted in two settings (with university students and employees). After the completion of the pilot trainings, interviews were conducted with participants and the course teachers and the results were fed back and discussed with the team.

4.3. Revision and Secession School Training

At this point of revision, some elements were considered unsuitable and thus removed from the curriculum. An example for this is an exercise that exposed participants to photographs of factories with poults (consumption area of food) or female sewers working under insupportable conditions (consumption area of clothing), and asked them to observe their thoughts, feelings and body sensations. Other elements such as the task to go shopping in a mindful way turned out to be suitable for the context of the training and were kept in the curriculum and given more time if needed and possible. Thus, based on those findings and changes, the structure and timing of each session was refined again.

While initially the training with secondary school students (grade 10, aged 15-16) and adults was identical, it became clear during 2 test runs that the school training required more fundamental and specific changes of the initial blueprint. This was due to the special preconditions of the target group (adolescents) and the setting (implementing the training into the school context). For example, it showed effective to include a higher frequency of switching between sitting and standing/walking, as well as to allocate time during sessions to reflect on certain questions in written form as a preparation and basis for group discussions. The adaptation process was inspired by a literature review on mindfulness programmes and formats especially for children and adolescents (e.g., Broderick & Frank, 2014; Kaltwasser, 2008; Meiklejohn et al., 2012; Rechtschaffen, 2016).

4.4. Result: The BiNKA Curriculum

The final BiNKA-training for all target groups comprises eight weekly sessions of 90 minutes and one longer session ("Day of Mindfulness") of four hours. The training sessions are built on one another and intertwined in form and content. In the first half of the training, the sessions are more mindfulness-focused, whereas in the second half, they are more consumption-specific. The topics of the BiNKA-session are the following:

1. Introduction – What is Mindfulness?
2. Obstacles and Challenges in Meditation
3. (Dis-)Satisfaction and Other Similarities
4. Emotional Intelligence – Be Mindful with what You Feel
5. Desires and Needs – Open Up towards Life
6. Compassion – Kindness towards Myself and Others

+1 Day of Mindfulness – Discover the Silence together

7. Mindful Consumption – To Have and to Be
8. A Mindful World – Inside Out

The topic of each session is addressed in "insight talks" between a teacher and participants, reflexive dyads/triads or group discussions as well as in the guided meditation practice (see Figure 2 for a more detailed overview of the different elements used in a prototypical session). Each session includes formal and informal mindfulness exercises. The formal mindfulness practice refers to a practice with a clearly defined procedure and time frame and comprises different types of mindfulness meditation such as body scan, sitting and walking meditation with focus on the breath, and loving kindness/ metta meditation. The informal mindfulness practice aims at transferring mindfulness into everyday life activities such as eating, shopping, showering, or walking. The "Day of Mindfulness" involves an intensive formal practice of mindfulness meditation as well as mindful potluck meal in silence. In addition to the weekly training sessions, the participants are encouraged to practice formal meditation autonomously on a daily basis (20 minutes for employees and university students and 15 minutes for secondary school students) and keep a practice diary on their experiences and reflections. In order to support the participants in these autonomous practices, audio recordings of guided meditations are provided (see mindfulness-and-consumption.de for sample downloads). Moreover, the participants get a specific task to practice mindfulness informally at home (e.g., "mindful shopping").

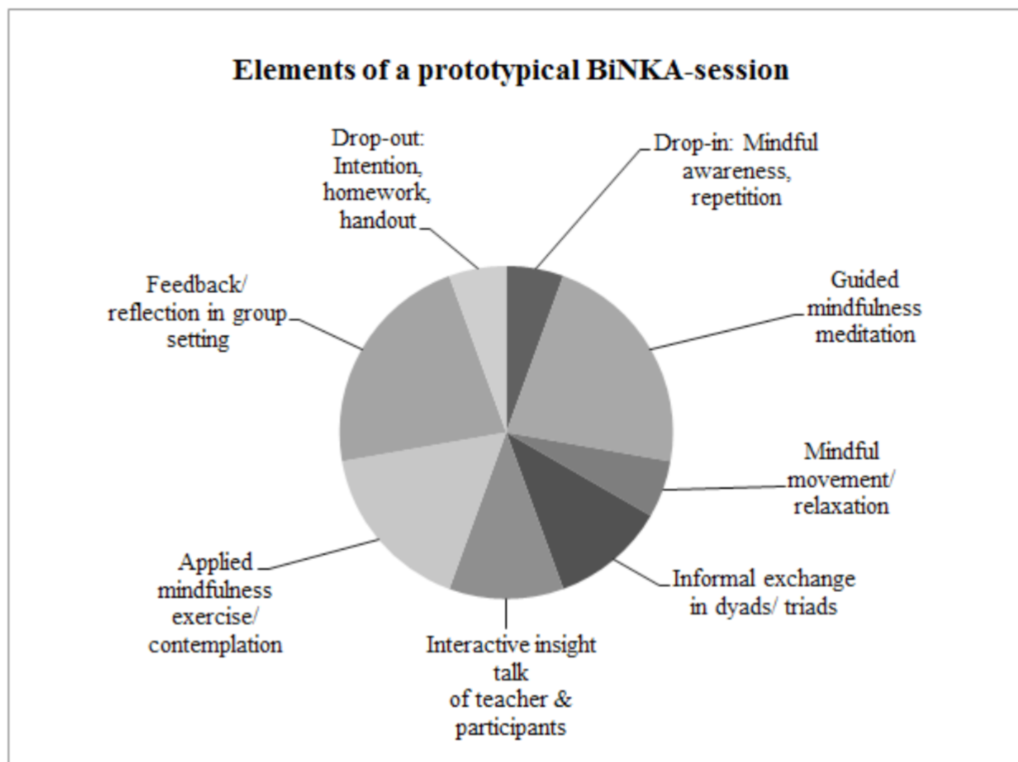

Figure 2: Elements of a prototypical BiNKA-session (proportions vary depending on session focus and group dynamics).

To give a more thorough impression of BiNKA-specific content, three concrete examples from different stages of the training are illustrated hereafter. The chosen examples are exemplary for (1) newly constructed, consumption-specific mindfulness exercises, (2) the fusion of an ESC format with mindfulness practice, and (3) the adaptation (e.g., deepening) of certain MBSR content to promote the ethical stance inherent in mindfulness considered relevant for sustainable consumption. Session 7 "Mindful Consumption – To Have and to Be" represents the most consumption-focused session of the BiNKA-training and is described in detail in appendix I.

(1) The homework "Mindfulness in Everyday Life: Mindful Shopping" aims at facilitating the introspection and reflection of subjective (consumption-specific) behavioural patterns and invites the participants to go shopping with a conscious activation of all of their senses. Participants are asked to slow down their usual routine so that they are able to observe their body sensations, their thoughts, and feelings more closely in any given consumption situation they select (e.g., shopping for groceries or clothes). The participants are then asked to reflect on their observations and to write them down in their practice diaries (week 1).

(2) The exercise "Interdependence: A Pair of Jeans Travels around the World" combines ESC and mindfulness and seeks to increase the participants' awareness of the social and global dimensions of their personal consumption practices as well as their capacity to reflect on these dimensions. The participants are guided through the different stages of the production of blue jeans in a visual journey and constantly encouraged to be in contact with their sensory experience (e.g., the feeling of their pants on their legs) and other inner reactions (e.g., thoughts, emotions) (week 7).

(3) The practice of loving kindness/metta meditation has been more deeply embedded in the BiNKA-training than it is found in standard MBSR interventions. The reason for this is that the qualities addressed by these types of practices (namely benevolence and compassion) are closely connected to the reflection and transformation of one's behaviour and were thus deemed as crucial by the project team (see Section 2). Metta meditation is introduced in two steps: first, the practice of embodied kindness and compassion towards oneself; second, expanding that practice by including others (people, living beings, nature). Apart from the practice and reflection in the training session, the participants are encouraged to read a text written by the trainer on “Mindfulness in Action - The Embodiment of Compassion” in the course handout as well as to practice the embodiment of compassion in their everyday lives (week 5 to 8).

5. Critical Reflection and Lessons Learnt

As described before, the BiNKA-training is consumption-specific mindfulness intervention that was developed to contribute to the advancement of ESC by strengthening affective learning and exploring the potentials of mindfulness to make changes towards more sustainable consumption practices. During the process of developing the training, certain aspects of the initial strategies were proved to be useful and were extended, while others turned out to be less helpful with regard to the overall purpose of the project. Two major lessons learnt are particularly relevant for the application of adapted MBIs within the framework of ESC and will be critically reflected hereafter: (1) emphasis should be laid on practices that stimulate participants' engagement with their inner affective processes and help elucidating these processes and make them accessible for reflection (e.g., through self-discovery and openly turning to individual ethical values, needs and behavioural patterns) rather than on external cognitive input; (2) for mindfulness practices to unfold their full and long-lasting potential for ESC, continuous practice and re-examination of consumption-related processes and experiences are required rather than one-shot intervention.

5.1. Rather Affective and Implicit than Cognitive and Explicit Learning Strategies Focusing on Introspection and Self-Discovery

Steady voluntary personal engagement and comprehension are fundamental for any kind of affective learning (Nelson & Creagh, 2013; Bandura & Schunk, 1981). This holds especially true for introspection processes as they are very individual tasks, which neither can be guided nor observed beyond a certain threshold by any external entity/person. Furthermore, specific and ongoing training is required to acquire awareness of those – mostly unconscious – inner occurrences that inherently impact everyday behaviour and underlying bodily functions (Petitmengin, 2006). As Petitmengin states, “Our most immediate and most intimate experience that which we live here and now is also that most foreign to us and the most difficult to access” (Petitmengin, 2006, p. 230). The need to focus on supporting the emergence of introspection/self-reflection and affective competencies to explore ñ and thus become able to change ñ individual (consumptionrelated) values, attitudes and actions proved to

be an essential insight to take from the process of developing the training, far more than was expected beforehand.

5.2. Promoting Implicit Ethical Values of Mindfulness

In contrast to affective learning and introspection, cognitive focused learning is more concerned with the acquisition of external information and conscious thought processes (Bandura & Schunk, 1981). Ethical or moral values conveyed in that way may trigger resistance or superficial acceptance that does not change individual value systems. The practice of mindfulness, on the other hand, envisages ethical development based on intuitive and affective understanding of what is right and wrong (Monteiro, Musten, & Compson, 2014). In traditional mindfulness and Buddhist teachings, the practice of meditation and awareness of our body/mind experiences bear the intention to transform the aforementioned unwholesome emotions and actions (namely greed, anger and delusion) into wholesome or “right” emotions and ethical actions (namely generosity, compassion and wisdom) (Grossman, 2015) in order to help alleviate suffering in oneself and the world. It is notable that, despite the minor stance, ethical education took so far in contemporary mindfulness research (Monteiro, 2016). Kabat-Zinn in the creation of MBSR has stressed the importance of MBIs to be grounded in a universal “dharma” understanding that is congruent with Buddhist dharma, but not constrained by traditions (Kabat-Zinn, 2011). The aim of the training was to support participants' capacity to reflect on their needs and increase their awareness of the ethical values they hold. Thus, it emerged as increasingly important in the course of developing and focusing of the training to consider the ethical dimension of mindfulness more strongly throughout the course of sessions.

5.3. Long-Lasting Change through Long-Term Practice instead of Short-Lasting Change through Short-Sighted Interventions

5.3.1. Behaviour Change Takes Time

One of the key characteristics of the BiNKA-training is its understanding of mindfulness that is rooted in the genuine ethical background of MBSR and mindfulness in Buddhism. According to this positioning, the aim was to stimulate reflection of intrinsic moral values and perceived inconsistencies in terms of attitude-behaviour-gaps, rather than to induce short-term and likely superficial changes on the behavioural level. Radical shifts in consumption patterns based on self-reflected ethical values, however, may take time to realise – presumably more time than an 8-week-training course can provide. This does not mean that consumption-specific mindfulness intervention is ineffective, but is important to consider when evaluating behavioural effects resulting from participation in the BiNKA-training.

5.3.2. Mindfulness Practice and SC Knowledge: A Hermeneutic Circle

Consideration of personal needs, (sustainable) consumption patterns and ethical values will per se depend on the individual knowledge base of sustainable consumption of the individual. To put it the

other way round: practice and experience in mindfulness are required to be able to develop the ability for advanced introspection and, thus, to recognise one's own unconscious behavioural patterns in the area of (sustainable) consumption. As stressed, such awareness is pivotal for aligning one's own behavioural patterns more closely to inherently held values. Little or no prior knowledge of sustainable consumption provides a less nuanced ground for reflection than a more comprehensive understanding of the challenges inherent in consumption practices. Even though, as clearly stated above, there are good reasons to keep the conveyance of extrinsic consumption related values and cognitive ESC knowledge to a minimum; reliance on "plain" mindfulness practice without a certain background for the introspection would not support ESC either. Thus, rather than to conceptualise (cognitive) knowledge of (sustainable) consumption (as a contribution of ESC) and the ability to reflect on affective processes in one's own consumption behaviour (as a contribution of mindfulness) as two separate entities, both are more appropriately understood as interacting and potentially reinforcing each other as they evolve and mature. Therefore, traditional one-time intervention may have only limited effects. Against this background and based on the experiences made in the development and implementation of the training, the project team concluded that it might be fruitful to integrate mindfulness and ESC over a longer period of time (while possibly less time-intensive and with a higher focus on individual practice) in a hermeneutic circle or spiral to further increase the potency of the intervention. This may also involve a more explicit ESC-oriented course prior or in parallel to the BiNKA-training instead of trying to minimise information about the inclusion of consumption-related content in advance of the training.

6. Conclusion

The starting point of this paper has been that there is a need to overcome the predominance of cognitive approaches in ESC and to stimulate a more holistic engagement with affective processes in learners. The critical case study presented on the development and implementation of consumption specific mindfulness training in educational settings has provided some insights that may promote future work in the field. The task itself required a team of both researchers from different fields and practitioners experienced in guiding learners in mindfulness. The assembly of the team ensured that the development of the curriculum was implemented by a rich and diverse body of different knowledge backgrounds and that quality criteria from different fields were met. The process of codesigning the training also revealed that values acted as a key concept in all related fields. Hence, future research on consumption-specific mindfulness trainings in educational settings may seek to further elaborate on the role of values and ethics. A possible next step can be to incorporate ethical education more explicitly as from a "right" mindfulness perspective, cultivating the "Noble Person" that transcends self-interest and lives for the well-being of others (Monteiro, 2016; Grossman, 2015). This may also benefit from a deeper understanding of mindfulness (Bodhi, 2011) and help respond to the challenge that, if not adequately met, may limit the potential of mindfulness for ESC. The challenge is the extension of the scope of mindfulness to a broader issue of social change and the reform of structures of systems of consumption and production. If mindfulness remains confined to the immediate inner world and to private consumption practices, it may effectively prevent the transformation of political and economic structures sustaining unsustainable consumption practices.

Hence, a crucial task for the further elaboration of MBIs in ESC is to connect inner and outer worlds as well as individual and social change agency.

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Appendix I.

Session 7 – „Mindful Consumption – To Have and to Be“

The seventh session of the BiNKA-training connects formal mindfulness meditation with its practical dimension and incorporates the reflection of questions like “What has mindfulness to do with my consumption behaviour?” and “What does mindful consumption mean to me personally?” guided and facilitated by the trainer. Additionally and very importantly, the practice of loving kindness/metta meditation is deepened during the session and at home. The focus of the session is explicitly laid on the individual *and* the social/global dimension of mindful consumption. The cultivation of wholesome emotions (e.g., benevolence and compassion) instead of unwholesome emotions (e.g., greed and

hatred) is shown as a way to establish an inner state of wellbeing and bliss, in contrast to the attempt to satisfy this need through excessive consumption and the accumulation of possessions. Moreover, light is shed onto the impact of one's consumption decisions (e.g., “Interdependence: A Pair of Jeans Travels around the World”) and the participants are encouraged to practice benevolent and compassionate behaviour in everyday life.

Table 3: Procedure of Session 7.

Element of session	Min.
Drop-in: Feeling the clothes on the skin	3
Brief repetition of Session 6 and introduction of Session 7	2
Guided meditation (metta stage 2): benevolence and compassion with oneself and others	20
Feedback/reflection of meditation practice and homework in group setting	10
Mindful movement/relaxing the body	5
Informal exchange in dyads/triads: consumption behaviour in the context of mindfulness	10
Feedback/reflection in group setting	5
Consumption-specific mindfulness exercise „Interdependence: A Pair of Jeans Travels around the World“	15
Feedback/reflection in group setting and interactive insight talk of teacher and participants: Mindful consumption	15
Setting an intention; reference to homework and course handouts	5

9.3. Knowledge Generation and Sustainable Development

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1. Introduction

This entry sketches the relation between knowledge generation (KG) and sustainable development (SD) as it appears within the realm of Higher Education for Sustainable Development (HESD). The suggestion is to distinguish three forms of appearances: The first relation can be called a passive relation. In this appearance, KG for SD is mainly undertaken by (academic) experts whose results and methods are conveyed to students in forms of canonical knowledge within HESD. The students' role in KG processes is hence the role of passive recipients of this canonical knowledge. Opposed to this appearance is the active relation. Here, students (and other social actors) are directly included in the process of KG in order to craft applicable solutions to concrete challenges for SD. Moreover, KG is not restricted to the acquisition of explicit knowledge. It also includes the development of tacit forms of knowledge that are deemed important for the prospective professional activities of students. Nevertheless, both the passive and active relation share an external orientation of KG processes, meaning that their matter of interest is neither the participants themselves nor the way they produce new knowledge. The third appearance, in contrast, primarily construes KG as a subjective process in which new information concerning SD is translated into new knowledge representations. It can be called reflexive appearance, because it aims to obtain awareness of the subjective process of KG, thereby laying the grounds for constructive KG processes for SD in the passive and active sense.

The entry suggests to roughly depict these three appearances in a progressive way. The passive form has strongly shaped HESD since the beginning of its existence. However, a transition toward the active form can be observed during the last years, inspired by a broader trend within Higher Education to actively engage students in KG and thereby shift educational practice from "teaching to learning." This transition within HESD is strongly propelled by sustainability science, in which the understanding of KG as a transdisciplinary, context-sensitive, and integrative process is widespread (Miller 2013). The reflexive relation is suggested as the prospective development stage of HESD. Although it has been largely neglected within Higher Education so far, there is emerging awareness for the importance for such a reflexive approach toward KG, as recent scientific publications and teaching programs indicate (e.g., Frank and Fischer 2018; Wamsler 2018).

Sections "Phase I: Knowledge Generation as Practice of Scientific Experts," "Phase II: Toward Integrative and Transdisciplinary Knowledge Generation," and "Phase III: The Reflexive Turn of Knowledge Generation for Sustainable Development" provide a detailed description of the three stages. The description is based on a brief outline of the intertwinement between KG, SD, and HESD in section "Knowledge Generation, Sustainable Development, and Higher Education: An Inextricable

Liaison." The entry closes with some reflexive words concerning the perspective and scope on the matter of KG and SD within Higher Education.

2. Knowledge Generation, Sustainable Development, and Higher Education: An Inextricable Liaison

The emergence of sustainable development as a global political program is inextricably linked to the practice of knowledge generation. The United Nations Stockholm Conference in 1972 is often deemed the political initiation of SD (Michelsen 2016). The conference was a reaction to growing environmental and socioeconomic concerns, which cast doubt on the then predominant ideals of progress, development, and economic growth as means to provide wealth and prosperity to humankind (Du Pisani 2006). Scientific knowledge took a paradox role in this matter. On the one hand, the advancement of the scientific knowledge substantially contributed to the appearance of unprecedented social inequalities and poverty, the depletion of natural resources, and ecological crises (Beck 1986). On the other hand, many of these problems were only able to become common knowledge because of scientific inquiry. The latter role of KG might also explain why both scholars and political leaders were still convinced that the ideal of human development was not yet to be abandoned, despite the global ecological and socioeconomic situation (Du Pisani 2006): As a result of the Stockholm Conference, it was held that "through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes..." (UN 1972). Science would play a particularly important role in bringing such a development forward, through identifying and contributing to the solution of the pressing yet complex social and environmental challenges. Since the term "sustainable development" was officially coined and set as a global leitmotif within the Brundtland report in 1987, this important role remains unshaken throughout the progression of SD and its milestones (UN 1993, 2015). The establishment of sustainability science in the beginning of the twenty-first century as a research field explicitly dedicated to the enterprise of SD further illustrates the strong intertwinement between KG and SD (Kates et al. 2001; Clark and Dickson 2003).

Similarly germane for the enterprise of SD is education. Environment-related education programs – as a response to the growing ecological challenges – have received increasing attention already in the 1960s (Hume and Barry 2015). First conferences on the topic of environmental education were held in Belgrade (1975) and Tbilisi (1977), exploring ways to "to develop a world population with the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solution to current problems and the prevention of any new ones" (Belgrade 1975, p. 3). Seventeen years later, the importance of education for SD was brought forward through the Agenda 21 in 1992, when the UN declared that it "is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues" (UN 1993, chapter 36, 3). A systematic conceptualization of Education for Sustainable Development (ESD) was advanced at the World Summit on Sustainable Development in Johannesburg in September 2002 (Johannesburg 2002), followed by the UN Decade of Education for Sustainable Development (DESD) from 2005 to 2015. The UNs' Sustainable Development Goals (SDGs, UN 2015) further cemented the

relevance of ESD, recently acknowledged by the UN General Assembly as the “key enabler” (UN 2017) for achieving the SDGs. It represents an educational program allowing people to “develop knowledge, skills, values and behaviours needed for sustainable development” (UNESCO 2018a).The Global Action Program on ESD (UNESCO 2018b) is the UNs’ latest project in pursuing this endeavor. Universities combine both KG and education and have therefore been quickly identified as pivotal actors of SD (Bettencourt and Kaur 2011). As Leal Filho (2015) points out, they majorly contribute to the understanding of the challenges for SD as well as the identification of their possible solutions while also being responsible for the education of future sustainability researchers and other professional actors within the field of sustainability. The latter role was officially embraced by the International Association of Universities (IAU) within the IAU Kyoto Declaration (1993) under the term Higher Education for Sustainable Development (HESD).

It is this double role of universities – to generate and transfer knowledge – which is crucial for the understanding of the relation between KG and SD within Higher Education. It means that the knowledge produced on the topic of sustainability, its related methods as well as its inherent epistemological and methodological assumptions, equally dominate the contents of educational programs for SD. In other words, HESD “‘translates’ research outcomes of sustainability science into educational practices” (Barth et al. 2015, p. 1). And even though it would be too hasty to equate the practice of sustainability science with HESD, their historical convergence and systematic interlocking are well documented (Mochizuki and Yarime 2016). In particular, sustainability science deals with the question of how to convey the “knowledge, skills, values and behaviors” in a way such that they allow people to promote a transition toward sustainable development, turning (H)ESD in an object of sustainability research on its own (Barth et al. 2015).

Therefore, if one aims to understand the relation between KG and SD within Higher Education, an analysis of the practice and development of sustainability science is indispensable. The following sections draw upon such an analysis when discussing the three suggested appearances of KG within HESD and their historical progression.

3. Phase I: Knowledge Generation as Practice of Scientific Experts

In line with the broader societal perception of science and scientific experts, knowledge generation within HESD was – and partly still is – depicted as a practice of scientific experts, whose methods and results are conveyed within educational programs. This this a passive relation between KG and SD, because the audience of such educational programs are not actively involved in the process of KG, but rather passively receive already existing knowledge.

As mentioned above, science played a crucial role for the agenda of SD from the very beginning. This is not to say that SD exclusively relies on scientific KG. On the contrary, already the Brundtland report explicitly highlights the importance of “community knowledge” and “public participation” (UN 1983; chapter 2, pg. 77). It also pointed out the varying relevance of knowledge in different areas and ecosystems around the globe (e.g., UN 1983; chapter 4, pg. 66). In addition, sustainability science always emphasized the importance to integrate “stakeholders, advocates, active citizens and users of

knowledge [...] to transform knowledge claims into trustworthy, socially-robust, usable knowledge" (Kates et al. 2001, p. 3). However, scientific KG was accorded a prerogative within the agenda of SD. Its evidence-based, methodically controlled approach toward the understanding of the social, economic, and environmental problems and its causes were often deemed superior to traditional forms of knowledge. For example, within the Agenda 21, it is hold that many "traditional beliefs [...] provided by a conventional education [...] remain ignorant about ways in which they could improve traditional production practices and better protect the natural resource base. Education should therefore provide comprehensive knowledge, encompassing and cutting across the social and natural sciences and the humanities" (UN 1993, chapter 4, pg. 67). Therefore, the conveyance of scientific findings on these matters was considered an essential part in promoting SD in general and within the framework of Higher Education in particular (UN 1983, 1993, 2015; OECD 2007).

The justification for this predominance of scientific KG is simple: human-environmental interactions and the emerging socioeconomic and environmental challenges are extremely complex phenomena (Marten 2001). Understanding these phenomena requires a considerable amount of theoretical, technological, and methodical expertise in itself. Withoutsuchexpertise,sustainability-related topics remain largely obscure and incomprehensible as the case of anthropogenic climate change clearly exemplifies (Hulme 2009). Many laypeople lack the necessary knowledge to sufficiently penetrate these subjects (Sezen-Barrie et al. 2017), leaving scientific experts at the frontline indefining and promoting SD (Oreskes 2004). In this regard, the scientific community behind SD can be construed as a mode I society in the sense of philosopher of science Michael Gibbons and colleagues (1994), defined as a form of KG led by academic experts discovering objective facts while working within distinct scientific disciplines.

This form of KG is also reflected within HESD. During the last decades, sustainability research has produced a range of quasi-canonical knowledge that constitutes the basis for making the next generation of sustainability experts. In forms of numerous handbooks, lectures, and seminars conveying fundamental theories, concepts, and methods deemed important for understanding sustainability-related topics, this knowledge has found access into curricula of Higher Education. Sustainability researchers Armin Wiek and Daniel Lang hold, for example, that "systems thinking and modeling, applied to past, current, and future sustainability problems" (32) constitute a dominant methodological approach in sustainability research that is hence conveyed within HESD. Also, natural sciences, particularly ecology and chemistry, as well as quantitative statistical methods, play an important role in sustainability curricula. Admittedly, contemporary research on HESD seems to agree that the exclusive conveyance of such canonical knowledge is neither sufficient nor pedagogically wise in order to prepare future generations for bringing forward a transition to sustainable development (e.g., Barth et al. 2015; Brundiers and Wiek 2017). It echoes a long-lasting discourse avowing the limits of scientific research within disciplinary boundaries, the necessity to open sustainability research to other forms of KG, and stronger consideration of building skills and competencies within ESD (e.g., Brundiers et al. 2010; Prain 2011; the next section will come back to this matter). Nonetheless, there is also emphasis on the relevance of canonical content in academic curricula and expert knowledge on SD that needs to be transferred to students (Tytler 2011; Thorén and Breian 2016). In fact, it is not least the continuous claims to transform HESD toward a

participative, interand transdisciplinary, skills- and competenceoriented enterprise that reflects the continuing widespread status quo of expert-made content knowledge within HESD (Brundiers and Wiek 2017).

In sum, the passive relation between KG and SD has always played – and still plays – an important role within HESD, even though it seems to stand in contrast to certain core ideas of (E)SD and is strongly disputed within research on HESD. Critics stemming from sustainability science repeatedly emphasize that the conveyance of scientific theories, concepts, and methods is not sufficient for empowering students to propel SD. In particular, real-world sustainability challenges are considered too complex as to restrict their solution to monodisciplinary scientific thinking. What is suggested instead is nothing less but a transformation of knowledge generation within the framework of SD.

4. Phase II: Toward Integrative and Transdisciplinary Knowledge Generation

In their book The new production of knowledge: The dynamics of science and research and contemporary science (1994), Gibbons and colleagues construed the aforementioned mode I knowledge generation society as opposed to another, more evolved form of KG they called mode II society. The latter form of KG differs from the first in at least five aspects (Martens 2006): KG in mode I society mainly is an academic practice, led by experts with monodisciplinary backgrounds producing epistemically certain knowledge with a predictive potential for future developments. In contrast to that, in a mode II society, knowledge is generated in a participative process including social actors from inter- and transdisciplinary contexts. Its aim is less predictive but rather exploratory, looking for socially robust (e.g., Nowotny 2003) solutions to real-world challenges instead of striving for epistemic certainty.

The idea of mode II KG was constitutive for the genesis of sustainability science (Kates et al. 2001; Martens 2006). Not only was the inter- and transdisciplinary approach toward the solution of real-world sustainability challenges an explicit conceptual part of sustainability science, it also reflected in the actual research practice. Scholars construed this practice as a "mutual learning process" (Scholz 2001) in which different knowledge systems are reconciled and merged into a more complete understanding of complex sustainabilityrelated issues. Of course, such an approach posed challenges to the various actors involved, thereby adding further complexity to KG processes: for example, not all participants might possess the same level of problem awareness, it is unclear what exactly legitimizes actors to participate in concrete KG processes, and a constructive integration of different knowledge backgrounds is far from being trivial (Lang et al. 2011). However, given both the complexity and urgency of the social, economic, and environmental problems humanity is facing in the twenty-first century, this mode of KG seemed to be without alternative. Besides, its application turned out to be quite promising (Cash et al. 2003), especially when experience with transdisciplinary, mutual learning processes grew and related difficulties could be systematically avoided (Vilsmaier et al. 2015; Clark et al. 2016).

In line with this development is the integration of previously neglected forms of knowledge and a reconsideration of the concept of knowledge itself. While knowledge in mode I society is largely reduced to an epistemic dimension and needs to be explicable in order to guarantee its intersubjectively comprehensible endeavor, transdisciplinary sustainability research is guided by a more differentiated understanding of knowledge. The distinction between systems, target, and transformation knowledge has been particularly influential within sustainability science (Pohl and Hirsch Hadorn 2007), referring to knowledge about the genesis and prospective development of real-world problems (systems knowledge), ideas of better practices and alternatives (target knowledge), and knowledge about the means to realize these ideas (transformation knowledge). Obviously, such a distinction allows to take knowledge systems into account that do not (necessarily) accomplish with scientific knowledge criteria, such as indigenous (Dixon 2005) or tacit knowledge (Curry and Kirwan 2014). As a consequence, actors possessing such knowledge become a valuable resource for KG processes.

The shift in the conception of KG from mode I to mode II effected the HESD in two different ways. For one, students were not seen as bare recipients of allegedly canonical knowledge, but were considered as active participants in the process of KG, holding useful expertise in the solution of concrete sustainability-related challenges (Brundiers and Wiek 2011). For another, passive conveyance was not considered as an adequate preparation for future sustainability professionals in order to take their responsibility as sustainability promoters anymore. (H)ESD thereby reacted to a broader paradigm shift from “Teaching to learning” within the Western (especially academic) educational system (Barr and Tagg 1995). This shift considered the pure conveyance of input knowledge ineffective. Instead, an orientation toward the output of learning, especially the obtainment of skills and competences, as the overall aim of education was focused. For ESD, this paradigm shift turned out to be particularly relevant, as many existing educational programs in this field could not equip students with the required skills for their work as sustainability professionals (MacDonald and Shriberg 2016). Against this backdrop, the development of skills and competences, the generation of tacit knowledge, was emphasized within HESD, again moving students into an active role in the process of KG. Real-world problem-based learning scenarios became particularly promising in this regard, as they combined students’ active role in crafting usable knowledge while at the same time allowing them to acquire the tacit knowledge needed in professional sustainability work (Brundiers et al. 2010). Many scholars still advance the shift toward the active relation between KG and SD in Higher Education (e.g., Brundiers and Wiek 2017).

Notwithstanding this tendency, it would be wrong to assume that the active relation is entirely replacing the passive relation between KG and SD in Higher Education. As mentioned before, canonical content knowledge is still an important part of HESD programs (Tytler 2011). Some scholars also explicitly raise doubts concerning mode II knowledge production and point to the limits of transdisciplinary KG (Miller 2013; Thorén and Breian 2016). Wiek and Lang (2016) suggest that the field of sustainability science can roughly be differentiated into two distinct research streams: “a ‘descriptive-analytical’ and a ‘transformational’ one” (p. 31). While the descriptive-analytical stream rather represents the passive relation between KG and SD in Higher Education, the transformational stream more strongly epitomizes its active relation. The argument here is that in the last years, the

predominance of the passive form of KG with HESD has been steadily shifted toward a stronger consideration of the active form, while still leaving the first as an important constituent of HESD.

5. Phase III: The Reflexive Turn of Knowledge Generation for Sustainable Development

While the debate on how to conceptualize KG within HESD goes on, voices have recently been raised that inter- and transdisciplinary thinking and the focus on (professional) skills and competencies are not sufficient to provide the aspired transformation toward SD. The sustainability challenges humanity is facing are indeed greater and more complicated than ever before, and (H) ESD has so far failed to counteract this tendency on a substantial level (Sol and Wals 2015; Wamsler et al. 2017). What is recommended is a reflexive turn within sustainability-related knowledge production and Higher Education programs and the inclusion of contemplative (especially mindfulness) practices to initiate this turn (e.g., Frank and Fischer 2018; Wamsler 2018).

The recommendation is based on the observation that the aforementioned understandings of knowledge generation have somewhat omitted to take the individual cognitive part of KG processes into account. In regard to the passive relation between KG and SD, it is presupposed that students can undistortedly obtain content knowledge deemed important for their professional education. When actors come to allegedly wrong beliefs, as, for example, climate change denial, this is explained as a lack of relevant content knowledge (Sezen-Barrie et al. 2017). In case of the active relation, the situation is similar. On the one hand, the orientation toward skills, competences, and tacit knowledge considers an individual dimension of KG. On the other hand, however, the challenge of integrating various forms of knowledge in mutual learning processes is mainly described as a problem of different methodological backgrounds and epistemic standards that need to be reconciled through internal facilitation and mediation as well as a continuous discourse and understanding on such processes (see, e.g., Lang et al. 2011). The way individuals perceive these processes, how they deal with the exchanged information, and what factors influence these dealings are not explicitly elaborated. Against this backdrop, the reflexive turn is a reminder that both forms of KG described above always imply an individual dimension of knowledge production, the process in which an individual is confronted with external information and translates this information into new knowledge representations (Strube and Wender 1993). It claims that both the passive and the active relation between KG and SD heavily rely on rational, discursive knowledge processing, although nonrational factors, such as emotions, motivations, and unconscious assumptions, play a crucial part in individual KG and strongly influence the way we deal with explicit forms of knowledge, such as facts, arguments, etc.

Evidence from different disciplines support this claim. The concept of cognitive biases, the theories of situated cognition and epistemic contextualism, or the work on personal epistemology constitute three well-researched examples. Cognitive biases describe the phenomenon that “individuals draw inferences or adopt beliefs where the evidence for doing so in a logically sound manner is either insufficient or absent” (Haselton et al. 2005, p. 725). Several cognitive biases have been proposed to explicate how nonrational factors distort our reasoning and beliefshaping processes (see Pohl 2004 for an overview), among which the theory of cognitive dissonance (Festinger 1957), defense motivations

(Masterson and Crawford 1982), the theory of psychological reactance (Brehm 1966), or the confirmation bias (Nickerson 1998) represent some popular appearances. According to the defenders of situated cognition, knowledge must be viewed as contextually and as “fundamentally influenced by the activity, context, and culture in which it is used” (McLellan 1996, p. 6). In opposition to the still common idea that attitudes, beliefs, and the like represent some sort of stable personality trait, situated cognition argues that such representations are contextsensitive (Robbins and Aydede 2008). Furthermore, the discourse built on these cognitions can change from one situation to another, underlining the importance of contextual factors in real-life interactive knowledge formation and information exchange (van Dijk 2009). Such factors potentially include mutable practical interests, affects, and emotions (e.g., Smith and Semin 2007). The theory of epistemic contextualism adds to this observation that the epistemic normativity (Stanley 2005) varies with different social contexts. In other words, the conditions of what counts as knowledge differ from one situation to another. A third body of evidence concerning the relevance of nonrational factors stems from research on personal epistemology. Several scholars (for an overview see Hofer and Pintrich 2002) argued that the way people develop knowledge directly depends on the beliefs these people hold about what knowledge is. In other words, epistemic assumptions guide the assimilation of new information we face.

The lack of consideration of the influence of nonrational components on KG within HESD is particularly surprising, because they seem to be especially relevant for SD. This becomes particularly pertinent concerning consumer behavior: Several scholars have pointed out that affectivemotivational factors play an important role both on individuals’ consumer behavior and their dealings with information on consumption (e.g., Schütte and Gregory-Smith 2015; Power et al. 2017). There is strong evidence supporting the hypothesis that facing the current and prospective consequences of contemporary western consumption prompts negative emotions among consumers, leading to cognitive dissonances, neutralizations, or other distortive mechanisms allowing to avoid a confrontation with such negative emotions (Chatzidakis et al. 2007; Sommer 2007; Frank 2017). More generally, educational psychologist Krista Muis et al. (2015) demonstrate how epistemic assumptions and emotions unconsciously effect the way people perceive texts on climate change, leading to the acceptance or refusal of related statements independently of their epistemic quality. This evidence explains further findings that a purely rational discursive approach toward strongly emotional topics, such as sustainable consumption, is not conducive (Tenbrunsel and Messick 2004) and can even entail the stabilization of non-sustainable beliefs (Haidt 2001). To the given moment, however, a systematic consideration of nonrational components influencing individual KG within HESD remains scarce.

To address this gap, some scholars have recently introduced the reflexive relation between KG and SD. Instead of producing knowledge deemed relevant for fostering SD, this relation focuses on the way individuals produce sustainability-related knowledge and how they assimilate new information on the topic. Of special interest in this matter are factors influencing the individual KG process that usually remain unconscious (Haidt 2001). By increasing the awareness of such factors, such as emotions, motivations, or unconscious assumptions, they can be made transparent and addressed (Gibson and Wisner 2016), thereby improving the individual’s self-determination in dealing with new information and hence improving the conditions for mutual learning processes. Contemplative practices, especially mindfulness practices as the most prominent and most intensively researched,

have turned out to be particularly promising to increase the awareness of such factors (Dorjee 2016). They describe a practice of cultivating "unbiased awareness that emerges through intentionally and continuously paying attention to subjective momentary experience with an open, accepting, benevolent, and compassionate attitude" (Böhme et al. 2016, p. 6). In recent years, these practices have been sporadically introduced into HESD contexts in general (Wamsleretal. 2017)andasa tooltoreflect KG processes in particular (Gibson and Wisner 2016; Frank and Fischer 2018; Wamsler 2018). Sustainability researchers Pascal Frank and colleagues provide first evidence that the systematic reflection of individual knowledge production through mindfulness training can indeed enable students to improve their awareness for personal knowledge generation processes, allowing them to deal with new and especially opposing arguments and opinions in a more open and empathic way (Frankand Fischer2018; Frank etal. Forthcoming).

Summarizing, the reflexive relation between KG and SD is still at the very beginning. Nevertheless, a growing body of research emphasizes the importance of undertaking the reflexive turn within (H)ESD. Current studies indicate that such a reflexive orientation toward knowledge production is promising and in some cases even indispensable for promoting sustainable development, as it lays the grounds for more constructive mutual learning processes. Furthermore, the explicit inclusion of nonrational factors in HESD is a further step toward fulfilling the increasing demand for the adoption of a holistic educational approach, combining professional education "with personal development and growth" through accounting for "cognitive, affective, and psychomotor dimensions of learning" (Brundiers and Wiek 2017, p. 2).

6. Concluding Remarks

This entry has sketched the relation between knowledge generation and sustainable development as it is experienced by students within HESD. It was suggested that three appearances of this relation can be distinguished, namely, a passive, an active, and a reflexive relation. In the passive relation, canonical content knowledge is conveyed to students, the process of KG thereby depicted as an activity requiring a theoretical and methodical expertise obtained through scientific education. The active relation includes students in KG processes. They actively participate in the solution of real-world, sustainability-related problems, which also allows them to build skills and competencies deemed relevant for their future professional life. The reflexive relation does not aim to – neither actively nor passively – build usable knowledge for sustainable development. It rather provides formats in which students observe their individual KG processes and obtain insights into the content-independent factors influencing these processes. These three appearances were described as phases of the relation between KG and SD: While the first appearance initially dominated, a clear tendency toward the second appearance can be observed. The third appearance was suggested as a prospective orientation within HESD. This does not imply, however, that the reflexive relation is per se more important or should hold some sort of prerogative within HESD. The statement is that this relation has been neglected so far, although accounting for the individual dimension of KG can lever both the passive and active relation and might sometimes even be a prerequisite to constructive knowledge

production for sustainable development. All these relations are valuable for promoting SD and should therefore be represented within HESD.

The here-presented distinction between the passive, active, and reflexive relation between KG and SD is an analytical one, providing a rough approximation on the matter rather than being a fully differentiated depiction of its complex reality. This entails that in practice, the described relations between KG and SD can intersect, and concrete formats within HESD might encompass aspects of all of them. The practical value of their analytical distinction is to identify the dominant understanding within specific formats and to allow a systematic integration of other types of KG if this is envisaged.
It is also worth noticing that much of this entry heavily relied on the predominant understanding of SD as it is outlined by the United Nations (UN 1972, 1983, 2015). This seems justified due to the incontestable impact of this understanding. Nonetheless, it should be considered that the concept sustainable development can be used in very different ways (Hopwood et al. 2005; Michelsen 2016), and alternatives to the UNs' most recent sustainable development goals exist (see, e.g., Wackernagel et al. 2017). Within these alternatives, the relation between KG and SD might in fact appear quite differently from what was described here. For example, philosopher Arne Næss foresaw the integration of contemplative practices and an orientation toward holistic learning process already in 1972 when he founded his deep ecology. The idea of the reflexive relation hence even precedes the beginning of the global SD agenda. However, it is also true that these ideas have not dominated HESD until today, and describing the dominant development of KG and SD within Higher Education is the aim of this entry.

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9.4. Introspektion und Bildung für nachhaltigen Konsum: Ein Lehr-Lern-Format zur systematischen Selbsterforschung in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte – Leuphana Universität Lüneburg.

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Abstract

Der Konsum tierischer Produkte ist aufgrund der ökologischen Konsequenzen der Herstellung tierischer Lebensmittel ein bedeutsames Thema für eine hochschulische Bildung für nachhaltigen Konsum. Nichtsdestotrotz ist eine Thematisierung der Problematik in der Hochschullehre mit Schwierigkeiten verbunden, die vor allem auf deren affektiv-moralische Aufgeladenheit zurückzuführen ist. Der vorliegende Beitrag stellt ein Lehr-Lern-Format vor, welches an der Leuphana Universität Lüneburg entwickelt und im Wintersemester 16/17 erstmals mit Bachelor- und Masterstudierenden erprobt wurde. Das Seminar stellte einen Versuch dar, eine rein diskursive Beschäftigung mit dem Konsum tierischer Produkte um Zugänge zu affektiv-motivationalen Einflussfaktoren zu ergänzen, die im Rahmen der Beschäftigung mit Gründen für den Konsum tierischer Produkte aufkommen. Dies geschah durch den Einsatz von Achtsamkeitsmeditationen sowie die Vermittlung introspektiver Methoden (Forschungstagebücher, *elicitation interviews*, Interpretativ-Phänomenologische Analyse), um die eigenen Emotionen und Motivationen im Hinblick auf den Konsum tierischer Produkte selbstreflexiv beobachten und systematisch-kontrolliert analysieren zu können. Der Beitrag liefert empirische Hinweise darauf, dass das Lehr-Lern-Format bei Studierenden die Fähigkeit zur forschenden Auseinandersetzung mit Werthaltungen, Affekten und unreflektierten Handlungsroutinen fördern und dadurch den Erwerb von Gestaltungskompetenzen für nachhaltigen Konsum in Bezug auf den Konsum tierischer Produkte anregen konnte.

1. Hintergrund

Wenngleich die Auseinandersetzung mit Fragen einer nachhaltigen Entwicklung deutlich weiter zurückreicht, so lässt sich doch sagen, dass sich Hochschulen in Deutschland seit etwa einem Vierteljahrhundert zunehmend mit Fragen einer nachhaltigen Entwicklung beschäftigen. In dieser Zeit wurde experimentiert, konzeptionell gearbeitet und über Netzwerke versucht, Hochschulen und Universitäten in ganz Deutschland in eine Auseinandersetzung mit der Frage anzustoßen, welchen Beitrag der tertiäre Bildungssektor im Kontext einer nachhaltigen Entwicklung zu leisten vermag. Neben der Forschung, dem eigenen Betrieb (z. B. Ressourcenmanagement, Campusgestaltung) und dem Wirken in die Gesellschaft hinein spielte dabei die Lehre von Beginn an eine zentrale Rolle (Fischer et al. 2015). Mit dem Weltaktionsprogramm „Bildung für nachhaltige Entwicklung“ (BNE,

UNESCO 2014) wurde auf internationaler Ebene nun eine neue Phase in der Implementierung von BNE an Hochschulen eingeleitet, die auch national ihren Niederschlag findet (Michelsen 2016).

Eine Schlüsselrolle nehmen dabei Fragen eines nachhaltigen Konsums ein. Konsum gilt als ein zentraler Treiber nicht-nachhaltiger Entwicklung und wird daher häufig auch in der Konzeptionen einer BNE fokussiert. Ein weiterer Grund für die prominente Berücksichtigung von nachhaltigem Konsum lässt sich darin ausmachen, dass Konsum für Lernende einen alltagsnahen und lebensweltlichen Zugang zu Fragen einer nachhaltigen Entwicklung eröffnet und damit ein beliebter Inhalt für die Gestaltung von Lehr-Lern-Settings und die Thematisierung verschiedener Nachhaltigkeitsaspekte darstellt (siehe auch Fischer 2010). Vor diesem Hintergrund überrascht es nicht, dass insbesondere junge Menschen im Weltaktionsprogramm als eine „wichtige Zielgruppe in Konsumgesellschaften“ angesprochen werden, der u. a. über die Gestaltung ihres zukünftigen Konsumverhaltens das Potential zugeschrieben wird, „nachhaltige Entwicklung stärker und schneller voranzubringen“ (UNESCO 2014, S. 22). Besonders erfolgversprechend seien dabei Ansätze, die es jungen Menschen ermöglichen, dass sie „ihre eigenen Ideen und Maßnahmen für nachhaltigen Konsum und nachhaltigen Lebensstil teilen können“ (ebd.). Unter dem Begriff Bildung für nachhaltigen Konsum (BNK) wird in einer Reihe nachhaltigkeitspolitischer Strategien eine verstärkte Auseinandersetzung mit Fragen eines nachhaltigen Konsums in Bildungskontexten gefordert. Beispiele hierfür auf der internationalen Ebene sind das 10-Jahresprogramm für nachhaltigen Konsum und nachhaltige Produktion (10YFP) (UNEP 2016) sowie die Nachhaltigkeitsentwicklungsziele (SDGs) der Vereinten Nationen, die im Ziel 4 explizit die Förderung nachhaltiger Lebensstile u. a. durch Bildung fordern (UN 2015). In Deutschland weist das Nationale Programm für Nachhaltigen Konsum (NP-NK) Bildung und BNK ausdrücklich als einen übergreifenden Handlungsansatz aus (BMUB 2016).

Die Bedeutung, die BNK – stets verstanden als eine inhaltliche Fokussierung einer allgemeinen BNE – in politischen Strategien beigemessen wird, spiegelt sich auch in der Bildungspraxis und der Bildungsforschung wider. So finden sich etwa in aktuellen hochschulischen Praxisbeispielen zahlreiche Bezüge zum nachhaltigen Konsum (vgl. etwa Weisser und Geibel 2016). Darüber hinaus hat sich auch international unter dem Begriff Higher Education for Sustainable Consumption eine Diskussion darüber entwickelt, wie hochschulische Lehr-Lern-Settings Studierende in eine Auseinandersetzung mit Fragen des nachhaltigen Konsums bringen können (vgl. etwa Adomßent et al. 2014). Übergreifendes Ziel einer hochschulischen BNK ist es dabei, den Erwerb von Schlüsselkompetenzen für nachhaltigen Konsum anzuregen, die es Studierenden ermöglichen, selbstbestimmt, eigenverantwortlich und reflexiv Herausforderungen in der individuellen Konsumpraxis und der Ausgestaltung gesellschaftlicher Konsum- und Produktionssysteme zu bewältigen (Fischer und Barth 2014).

Einen besonders relevanten Anknüpfungspunkt für BNK-Konzepte stellt dabei der Konsum tierischer Produkte dar. Vor allem die Massentierhaltung, welche in Deutschland Schätzungen zufolge für 98 % der Tierproduktion verantwortlich ist (Zösch und Schäfer 2010), haben aktuelle Studien als Hauptursache für Klimaerwärmung (FAO 2006), Wasserverbrauch (Mekonnen und Hoekstra 2012), Umkippen der Meere und allgemeine Gewässerverschmutzung (FAO 2006), Regenwaldabholzung

(ebd.) sowie die Ausrottung anderer Spezies (WWF 2015) identifiziert. Tatsächlich problematisieren Wissenschaftler_innen seit Jahrzehnten die industrielle Tierproduktion aufgrund des ineffizienten Gebrauchs an Ressourcen wie Wasser, Land und Energie (vgl. Gossard und York 2003). Deshalb wird inzwischen argumentiert, dass eine deutliche Reduktion des Konsums tierischer Produkte für das Erreichen internationaler Klimaziele unerlässlich ist (Hedenus et al. 2014). Und obwohl in Deutschland die meisten Menschen den Schutz der Umwelt für wichtig erachten und zwei Drittel der Gesamtbevölkerung angibt, bereit zu sein, auch den persönlichen Konsum tierischer Produkte für dieses Ziel einzuschränken (Scholl et al. 2015), bleibt die Umsetzung dieser Absicht eine Seltenheit (Kleinhückelkotten et al. 2016). Vor diesem Hintergrund erscheint eine Auseinandersetzung mit dem Konsum tierischer Produkte im Kontext einer BNK naheliegend.

Der Konsum tierischer Produkte als Gegenstand von BNK ist allerdings mit mindestens zwei Herausforderungen verbunden. Erstens bleibt der Tierproduktkonsum auch im Hinblick auf dessen ökologische Konsequenzen durchaus kontrovers diskutiert. Um einige Beispiele zu erwähnen: Einige Autor_innen stimmen zwar mit der Kritik am Verzehr tierischer Lebensmittel darin überein, dass sie die negativen ökologischen Auswirkungen der Massentierhaltung anerkennen (z. B. Idel 2012); leiten allerdings daraus keineswegs ein Plädoyer für eine vegetarische oder vegane Ernährungsweise ab, sondern sprechen sich stattdessen für den Verzehr lokaler tierischer Produkte aus. Während Hedenus et al. (2014) die Notwendigkeit der deutlichen Reduktion sämtlicher Tierprodukte für eine nachhaltige Entwicklung betonen, ist laut dem Forscherteam um Christian Peters (2016) eine lactovegetarische Ernährung im Hinblick auf ihre Landnutzung die ökologisch sinnvollste. Schließlich gibt es auch Wissenschaftler_innen, die im hohen globalen Fleischkonsum und der dafür notwendigen Intensivtierhaltung kein grundsätzliches Problem sehen, selbst wenn sie auch eine geringe Konsumeinschränkung und punktuelle Veränderungen im Produktionsbereich für ökologisch notwendig halten (z. B. Smil 2013). Diese kontroverse Ausgangslage macht es schwierig, einer Auseinandersetzung mit dem Konsum tierischer Produkte in der BNK eine klare handlungspraktische Ausrichtung zu geben.

Zweitens ist die Auseinandersetzung mit dem Konsum tierischer Produkte eng verwoben mit affektiv-motivationalen Prozessen. Einerseits ist der Fleischverzicht für die meisten Vegetarier_innen und Veganer_innen eine moralische Angelegenheit (Ruby 2012). Selbst viele Fleischkonsument_innen äußern eine Verbundenheit gegenüber Tieren und empfinden deren Leid als emotional belastend und moralisch abstoßend (Plous 1993). Andererseits sieht eine Vielzahl von Akteur_innen in der Verbreitung fleischfreier Ernährungspraktiken eine Gefahr für die westlichen Kernwerte individueller Konsum- und Lebensgestaltungsfreiheit, gemäß derer insbesondere der Fleischverzehr ein unumstößliches, persönliches Recht darstellt (Beekman 2000; Graça et al. 2015). Die Auseinandersetzung mit dem Konsum tierischer Produkte ist also hochgradig moralisch aufgeladen, was gemäß dem sozial-intuitiven Modell des Moralpsychologen Jonathan Haidt (2001) einer rationalen Auseinandersetzung mit der Thematik entgegenstehen kann.

Eine Vielzahl empirischer Untersuchungen zum Fleischkonsum bestätigt diese Prognose. Auf der einen Seite stellt zum Beispiel einer der Autoren dieses Beitrags, Pascal Frank (2017), dar, wie der Verzehr von totem Tier angesichts zuwiderlaufender moralischer Ansprüche und selbstidentitärer

Konzepte emotionale Belastungen hervorrufen kann. Motiviert durch den Wunsch diese aufzulösen, greifen Akteur_innen auf Verdrängungs- und Rationalisierungsstrategien zurück, welche einer unvoreingenommen Auseinandersetzung mit Argumenten zur Thematik entgegenstehen (siehe auch Rothgerber 2014). Auf der anderen Seite liefern Petra Sneijder und Hedwig te Molder (2005) am Beispiel gesundheitsbezogener Fragestellungen zum Veganismus Hinweise darauf, wie Repräsentant_innen einer fleischfreien Ernährung ihre eigenen ideologischen Vorannahmen gegenüber konträrer Argumente immunisieren und dadurch stabilisieren. Die Quintessenz aus dem Gesagten ist, dass eine rein intellektuell-diskursive Auseinandersetzung mit dem Konsum tierischer Produkte die beteiligten Akteure in ihren affektiv-moralischen Vorannahmen eher bestärken und dementsprechend die Kontroverse eher polarisieren kann, als diese im Sinne einer BNK konstruktiv zu öffnen.

Wie lässt sich diesen Herausforderungen begegnen? Im vorliegenden Beitrag stellen wir ein an der Leuphana Universität Lüneburg durchgeführtes Seminarformat vor, das Studierenden reflexive Zugänge zu den emotionalen und motivationalen Prozessen eröffnet, welche die Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte hervorbringt. Dafür werden sogenannte Achtsamkeitspraktiken (Kabat-Zinn 2005) als introspektive Zugangsmethode in das Seminar eingebunden. Wir werden im Folgenden zunächst begründen, wieso dies ein vielversprechender Zugang zu den affektiv-motivationalen Prozessen darstellt, welche die Seminarthematik begleiten. Darauf folgt eine Beschreibung der Seminarkonzeption sowie der institutionellen Rahmenbedingungen, in denen die Umsetzung des Seminars erfolgte. Auf Basis unserer eigenen Eindrücke sowie in Form von Reflexionstagebüchern festgehaltenen Rückmeldungen der Studierenden diskutieren wir die Möglichkeiten und Schwierigkeiten des Seminarformats und skizzieren Ansatzpunkte zu dessen Weiterentwicklung.

2. Achtsamkeit als introspektive Zugangsmethode

Das beschriebene Seminarformat verfolgt das Ziel, bei Studierenden eine reflexive Auseinandersetzung mit Emotionen und Motivationen anzuregen, welche im Umgang mit Argumenten zum Konsum tierischer Produkte aufkommen und die diskursive Auseinandersetzung beeinflussen. In der Umsetzung begegnet man dabei verschiedenen Schwierigkeiten: Autor_innen haben darauf hingewiesen, dass ein introspektiver Zugang zu unseren Emotionen und Motivationen alles andere als zuverlässig ist. So betont zum Beispiel der Psychologe Timothy Wilson (2004), dass viele Menschen über unzureichende Kenntnisse über ihre eigenen Handlungsgründe und Motivationen verfügen. Ebenso gibt es Hinweise darauf, dass der Zugang zu eigenen emotionalen Zuständen unzuverlässig ist (z. B. Haybron 2007). Untermauert wird diese spezifische Kritik durch eine generelle Skepsis gegenüber introspektiver Erkenntnisgewinnung. Diese lässt sich gemäß dem Philosophen David Chalmers (1999) auf vier Kernpunkte reduzieren: Demnach sind introspektive Verfahren charakterisiert durch „[1] einen fehleranfälligen Zugang zur Erfahrung; [2] die Vorstellung, dass Selbstbeobachtung das tatsächliche Erleben verändert; [3] die Unmöglichkeit, die Gesamtheit einer Erfahrung gleichzeitig zu erfassen und schließlich [4] die Möglichkeit von ‚großen Illusionen'", das heißt die Möglichkeit, sich in der eigenen Wahrnehmung und insbesondere in der Deutung der eigenen Erlebnisse zu täuschen. Außerdem betont Chalmers, dass die Kommunikation von Selbstbeobachtung

über Sprache erfolgen muss, welche neue Fehleranfälligkeiten der Vermittlung introspektiver Einsichten mit sich bringt. Obwohl die vorgebrachten Kritikpunkte ernst zu nehmen sind, beziehen sie sich ausschließlich auf ungelernte Selbstbeobachtungen. Sie zeigen somit lediglich, dass der Zugang zu inneren Prozessen keineswegs selbstverständlich ist. Allerdings ist *alle* anfängliche Beobachtung „unklar", „verworren" und durch „widersprechende Stimmungen" (Fleck 1980, S. 121) getrieben. Wie für jede andere Form der Erkenntnisgewinnung auch gilt für die Selbstbeobachtung somit, dass es einer gewissen Systematik und eines Trainings bedarf, um brauchbare Einsichten hervorzubringen.

Achtsamkeitspraktiken stellen ein vielversprechendes Verfahren dar, um Individuen einen systematischen Zugang zu inneren Prozessen zu ermöglichen (Fox et al. 2012). Dem Psychologen David Craswell (2016) zufolge kann Achtsamkeit allgemein definiert werden als „Prozess des bewussten Erfahrens des gegenwärtigen Augenblicks" (S. 4, Übersetzung d. Autoren), wobei dieses Erfahren u. a. Körperempfindungen, Gefühle, Sinneswahrnehmungen oder Gedanken umfassen kann. Gemäß dem Forscherteam um Scott Bishop (2004) haben Achtsamkeitstechniken weiterhin zum Ziel, einen Zustand zu kultivieren, „in dem [insbesondere] Gedanken und Gefühle als mentale Ereignisse beobachtet werden, ohne sich mit diesen übermäßig zu identifizieren und ohne auf sie in automatischer, gewohnheitsmäßiger Weise zu reagieren" (ebd., S. 232, Übersetzung d. Autoren). Achtsamkeitspraktiken haben vor allem als therapeutische (speziell psychotherapeutische) Maßnahme enorme Beachtung erfahren (Craswell 2016). Annahme dabei ist, dass zum Beispiel Depressionen auf fehlender Achtsamkeit gegenüber den negativen Gedanken und Emotionen basieren, auf welche die betroffenen Akteure „in automatischer, gewohnheitsmäßiger Weise" reagieren und als Konsequenz in pathologische Negativspiralen verfallen. Die bewusste Wahrnehmung entsprechender Kognitionen soll helfen, sich von diesen distanzieren und dadurch den Negativspiralen bereits vor ihrer Entstehung entgegenwirken zu können.

Vier Arten von Hinweisen sprechen dafür, dass sich mittels Achtsamkeitstrainings tatsächlich das Gewahrsein für innere Prozesse kultivieren lässt. Erstens ist das therapeutische Potential von Achtsamkeitstrainings inzwischen umfassend belegt und ein gesteigertes Achtsamkeitslevel als ursächlich für die gesundheitlichen Veränderungen herausgestellt worden (ebd.). Zweitens gibt es qualitative Studien, welche die positiven Wirkungen von Achtsamkeitspraxktiken auf das innere Gewahrsein betonen. So hat zum Beispiel die Anthropologin Michal Pagis (2009) eine ethnographische Studie über *Vipassana-Meditationen* vorgelegt, welche zeigt, dass die Kultivierung introspektiver Fähigkeiten zu den Kernerfahrungen der Vipassana-Praktizierenden gehört. Kaum noch zu überblicken sind drittens die quantitativen Forschungsarbeiten zum Zusammenhang zwischen Achtsamkeitstraining und innerem Gewahrsein. Zwar sollte nicht unerwähnt bleiben, dass die gängigen quantitativen Messinstrumente für Achtsamkeit durchaus kontrovers diskutiert werden (vgl. Grossman 2008) und auch nicht alle Untersuchungen tatsächliche Verbesserungen introspektiver Leistungen als Folge von Achtsamkeitstrainings bestätigen (e.g. Falkenström 2010); dennoch lässt sich ein positiver Zusammenhang zwischen entsprechenden Trainings und der Entwicklung introspektiver Fähigkeiten nicht von der Hand weisen. Eine Metastudie macht zum Beispiel deutlich, dass Achtsamkeitspraktiken zu signifikanten Verbesserungen diverser, für Meditationstrainings spezifischer kognitive Leistungen führen können (Chiesa et al. 2011, S. 462). Fox et al. (2012) legen sogar nahe, dass Achtsamkeitstrainings die Verbalisierungsfähigkeit innerer Prozesse steigern können. Dies mag

nicht zuletzt auf das Potential des Trainings zurückzuführen sein, effektive Gedächtnisleistungen zu steigern (Chiesa et al. 2011). Damit eignen sich Achtsamkeitstechniken auch, einem weiteren potentiellen Schwachpunkt ungeübter Introspektion entgegenzuwirken, nämlich der Gefahr, durch fehlerhafte Erinnerung die Zuverlässigkeit verbalisierter Selbstbeobachtung zu verringern (Tulving 1972). Substantielle Unterstützung finden diese Ergebnisse viertens durch die Hirnforschung. Die Neurophänomenologen Antoine Lutz, John Dunne und Richard Davidson (2007) verknüpften zum Beispiel verbalisierte Selbstbeobachtungen mit neurologischen Messungen und konnten nachweisen, dass in Meditation geübte Akteure genauere introspektive Aussagen liefern als ungeübte Akteure. Auch das Forscherteam um Han-Gue Jo (2015) konnte zeigen, dass in Meditation Geübte über eine zuverlässige Wahrnehmung selbst subtiler innerer Prozesse verfügen.

Aus diesen Gründen scheint auch gerechtfertigt, Achtsamkeitspraktiken zur Beobachtung der affektiv-motivationalen Prozesse zu nutzen, welche im Umgang mit Argumenten zum Konsum tierischer Produkte entstehen.

3. Seminargestaltung

Das hier vorgestellte Seminarformat thematisiert den Konsum tierischer Produkte. Entgegen üblicher Beschäftigungen mit der Thematik basiert das Seminarformat allerdings auf der Grundannahme, dass hierfür eine rein intellektuell-diskursive Beschäftigung mit verschiedenen Standpunkten und Argumenten zum Konsum tierischer Produkte nicht sinnvoll ist. Der Grund hierfür ist, dass moralisch sensible Themen – und der Konsum tierischer Produkte ist ein solches Thema – häufig durch starke affektiv-motivationale Prozesse begleitet werden. Diese wiederum beeinflussen den Umgang mit Argumenten und damit einhergehend der Ausbildung von Überzeugungen zum gegebenen Inhalt. Wo diese nichtrationalen Einflussfaktoren nicht thematisiert werden, läuft die diskursive Auseinandersetzung wie oben erläutert Gefahr, lediglich vorhandene Positionen zu manifestieren und im Falle des Konsums tierischer Produkte vorhandene Kontroversen weiter zu polarisieren, anstatt konstruktive Handlungsmöglichkeiten im Sinne einer nachhaltigen Entwicklung zu generieren. Hauptanliegen des Seminars ist es, diesem Problem entgegenzuwirken. Es zielt darauf ab, bei Studierenden die Fähigkeit zur forschenden Auseinandersetzung mit Werthaltungen, Affekten und unreflektierten Handlungsroutinen zu fördern und dadurch den Erwerb von Gestaltungskompetenzen für nachhaltigen Konsum anzuregen. Dafür rückt eine Beschäftigung mit den individuellen Emotionen und Motivationen in den Fokus, welche im Rahmen der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte bei den Studierenden aufkommen (siehe Abb. 28.1).

Zur Umsetzung dieses Vorhabens greift das Seminar auf Prinzipien des erfahrungsbasierten Lernens zurück, wie sie ursprünglich von David Kolb entwickelt wurden. Kolb formulierte in Rückbezug auf lerntheoretische Ansätze Deweys, Lewins und Piagets Lernen als einen Prozess, in dem Wissen durch die Transformation von Erfahrung entsteht (Kolb 1984, S. 38). Um Lernen zu verstehen, bedarf es daher nach Kolb eines Verständnisses vom Wesen und der Form menschlichen Wissens und der Prozesse, wie dieses Wissen entsteht. Konkrete und unmittelbare Erfahrungen bilden demnach die Grundlage für Beobachtungen und für Reflektionen, aus denen dann wiederum abstrakte

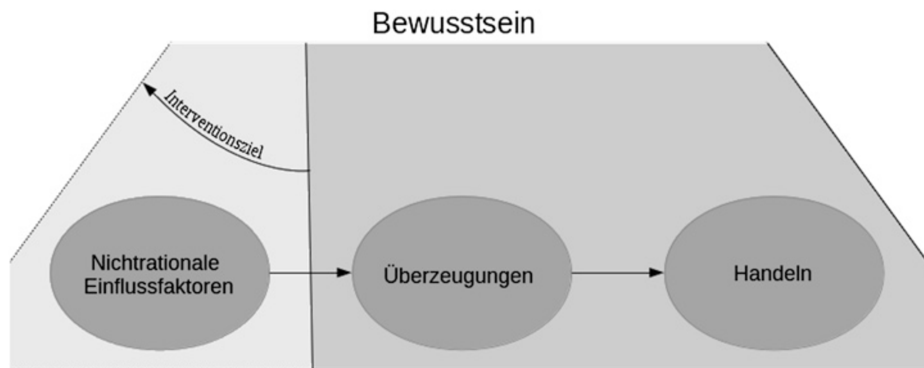

Abb. 1: Das Hauptanliegen des Seminars ist es, ein Bewusstsein für nichtrationale Einflussfaktoren zu entwickeln, welche die Ausbildung von Überzeugungen zum Konsum tierischer Produkte beeinflussen.

Konzepte mit Relevanz für neue Handlungsmöglichkeiten hervorgehen können, die sich wiederum aktiv ausprobieren lassen (Kolb und Kolb 2005, S. 194). Erfahrungsbasiertes Lernen lässt sich somit als ein zirkulärer Prozess des Erfahrens, Reflektierens, Denkens und Handelns verstehen (ibid.). Für nachhaltigkeitsbezogene Lehr-Lern-Settings liegen inzwischen einige Beispiele vor, wie Prinzipien des erfahrungsbasierten Lernens als Grundlage für die Gestaltung kompetenzförderlicher methodisch-didaktischer Arrangements fruchtbar gemacht werden können (siehe z. B. Caniglia et al. 2016). Im aktuellen UNESCO-Bericht zu Lehr-Lern-Zielen einer BNE wird das erfahrungsbasierte Lernen in der Tradition Kolbs gar als ein „pädagogischer Schlüsselansatz“ (UNESCO 2017, S. 55) in der BNE bezeichnet.

Vor diesem Hintergrund wurde ein dreiteiliges Seminarformat konzipiert, bestehend aus einem Diskussionsteil, einem Achtsamkeitsmeditationsteil und einem selbstreflexiven Methodentraining. Der Diskussionsteil gibt Studierenden die Möglichkeit, Argumente für und wider den Konsum tierischer Produkte auszutauschen. Hierfür werden im Vorfeld wissenschaftliche Texte zur Verfügung gestellt, welche unterschiedliche Standpunkte zur Thematik abdecken. Der disziplinäre Hintergrund dieser Texte ändert sich dabei mit jeder Seminarsitzung, d. h. der Konsum tierischer Produkte wird im Verlauf des Seminars aus ethischer, ökologischer, gesundheitlicher, sozialpsychologischer und kulturgeschichtlicher Perspektive beleuchtet. Im Anschluss an die Diskussion erfolgt dann ein Achtsamkeitsmeditationsteil. Dieser hat primär zum Ziel, die Introspektionsfähigkeiten der Studierenden zu entwickeln und einen Zustand des offenen Gewahrseins (Lippelt et al. 2014) zu kultivieren. Angelehnt an die vom Achtsamkeitsforscher Jon Kabat-Zinn (2005) entwickelten Achtsamkeitsmethode Mindfulness-Based Stress Reduction (MBSR) geschieht dies durch eine systematische Betrachtung der Sinnes- und Körperempfindungen, des Atems sowie der emotionalen Prozesse, welche sich dem Individuum im Moment der Meditationspraxis zeigen. Letztere gibt den Studierenden mithin auch Techniken an die Hand, um innere Prozesse im Umgang mit Argumenten zum Konsum tierischer Produkte gezielt beobachten zu können. Im selbstreflexiven Methodentraining lernen die Seminarteilnehmenden schließlich Verfahren kennen, um ihre introspektiven Einsichten zu verbalisieren und wissenschaftlich analysieren zu können. Ersteres geschieht mithilfe sogenannter Elicitation Interviews (Petitmengin 2007) sowie dem Verfassen von Forschungstagebüchern (Mayring

2002), in deren Rahmen die Teilnehmer über ihre Seminareindrücke bzw. an die Seminarthematik anknüpfende Erfahrungen aus dem Alltag reflektieren können. Als Analyseverfahren lernen die Studierenden die Interpretativ-Phänomenologische Analyse (IPA, Smith et al. 2009) kennen.

Das Seminarkonzept wurde im Wintersemester 2016/2017 an der Leuphana Universität Lüneburg in zwei Varianten umgesetzt. Erstens leitete Pascal Frank für Studienanfänger_innen eine zwei Semesterwochenstunden (SWS) umfassende Lehrveranstaltung unter dem Titel „Qualitative Zugänge zu Gerechtigkeitsvorstellungen am Beispiel des Konsums tierischer Produkte“. Die Veranstaltung bestand aus insgesamt sieben Sitzungen à 210 min, welche im Abstand von zwei Wochen über den Zeitraum vom 17. Oktober 2016 bis 31. Januar 2017 abgehalten wurden. Dabei wurden jeweils 90 min dem Diskussionsteil, 60 min dem Achtsamkeitsmeditationsteil und weitere 60 min dem Methodentraining gewidmet. Die disziplinären Zugänge zum Konsum tierischer Produkte wurden mit den Studierenden in jeder Sitzung bestimmt und umfassten ethische, gesundheitliche, ökologische, sozialpsychologische und ernährungssoziologische bzw. kulturwissenschaftliche Perspektiven auf die Thematik. Das Achtsamkeitstraining bestand neben kurzen theoretischen Inputs vor allem in vielfältigen Praxiszugängen zur Kultivierung eines offenen Gewahrseins. Diese umfassten neben traditioneller Sitzmeditation im Stillen auch Gehmeditation, Körperübungen, Bodyscans, Atembetrachtungen und bewusste Sinnesempfindung (vgl. Kabat-Zinn 2005). Im Methodentraining wurden die Studierenden schließlich mit der Ausführung von Elicitation Interviews und der IPA vertraut gemacht. Nachdem diese zunächst theoretisch vorgestellt und allgemein eingeübt wurden, erfolgte deren Anwendung im Seminarverlauf auf spezifische Forschungsfragen, welchen sich die Teilnehmer in Kleingruppen widmeten. Als Prüfungsleistung sah das Seminar vor, dass sich die Studierenden in Kleingruppen zusammenfinden, um im Sinne des forschenden Lernens (Huber 2009) eigenständig Fragestellungen zur Seminarthematik zu entwickeln und diese empirisch zu beforschen.
Zweitens boten Pascal Frank und Daniel Fischer gemeinsam ein gleichnamiges Seminar mit geringerem Zeitumfang für Masterstudierende an. Die Veranstaltung bestand aus sechs Sitzung à 105 min. Diese verteilten sich jeweils auf eine einstündige Diskussion, eine halbstündige Meditation sowie eine viertelstündige Methodenreflexion. Aufgrund der begrenzten Zeit wurde in diesem Seminar auch auf die Vermittlung der Elicitation Interviews verzichtet, stattdessen beschränkten sich die Studierenden auf das Führen eines Forschungstagebuchs zur Generierung empirischen Materials. Wie auch im Bachelorseminar sollten die Studierenden selbständig Fragestellungen zum Zusammenhang zwischen affektiv-motivationalen Faktoren und dem Umgang mit Argumenten zum Konsum tierischer Produkte entwickeln, die sie dann auf Basis der eigenen Reflexionstagebücher mithilfe der IPA in Kleingruppen auswerteten.

4. Introspektion und Tierproduktkonsum: Eine vielversprechende Kombination für BNK?

Das zentrale Anliegen des Seminarformats ist es, die Fähigkeit zur Auseinandersetzung mit affektiv-motivationalen Prozessen im Umgang mit Argumenten zum Konsum tierischer Produkte zu fördern und dadurch den Erwerb von Gestaltungskompetenzen für nachhaltigen Konsum anzuregen. Abgesehen von den persönlichen Eindrücken der Dozenten und dem Feedback der Studierenden liegt

in Form der Reflexionstagebücher, der Interviewtranskripte sowie der Forschungsergebnisse der Seminarteilnehmer_innen auch objektives Material vor, um einzuschätzen, inwiefern dieses Anliegen umgesetzt werden konnte.

Im Sinne des erfahrungsbasierten Lernens wurde den Studierenden zu Beginn des Seminars nicht mitgeteilt, welche affektiv-motivationalen Prozesse genau zu beobachten waren bzw. wie deren Beeinflussung des diskursiven Seminarteils im Detail aussehen würde. Die Einsichten in nichtrationale Einflussfaktoren sollten also ausschließlich auf Selbsterforschung basieren und wurden weder theoretisch unterfüttert noch gezielt angeleitet. Dies sorgte zu Beginn des Seminars für einige Verunsicherungen. Die selbstreflexive Beschäftigung mit konkreten emotionalen und motivationalen Prozessen in Form von Elicitation Interviews und Reflexionstagebüchern war für viele Studierende ungewohnt. Anstelle von präzisen Beschreibungen des subjektiven Erlebens während der Seminarsitzungen griffen Studierende während der Interviews häufig auf abstrakte Beschreibungen oder Deutungen der Situation zurück, was eine bekannte Schwierigkeit darstellt, wenn Personen erstmals ihr momentanes Erleben verbalisieren sollen (Petitmengin 2007). Auch der Fokus der Tagebucheinträge lag anfänglich auf einer theoretischen Auseinandersetzung mit bzw. Beurteilung der Argumente, welche im Diskussionsteil ausgetauscht wurden. Die Thematisierung der durch den Seminarinhalt aufkommenden affektiv-motivationalen Prozesse fiel einem Großteil der Seminarteilnehmenden schwer. Vor diesem Hintergrund überrascht es auch nicht, dass viele Studierende anfangs auch die Einbeziehung von Achtsamkeitspraktiken als irritierend empfanden und Schwierigkeiten dabei hatten, diese in Zusammenhang zu den Seminarinhalten zu bringen.

Mit zunehmender Seminardauer gelang es den Studierenden immer besser, ihr momentanes Erleben zu artikulieren und Emotionen und Motivationen im Umgang mit Argumenten in den Tagebüchern zu reflektieren. Dies spiegelte sich auch in den Forschungsprojekten wider, welche die Teilnehmenden in Gruppenarbeit verfolgten und in deren Rahmen Tagebücher und Interviews gezielt und methodisch kontrolliert analysiert wurden. Als Ergebnis dieser Analyse lagen detaillierte Beschreibungen der affektiv- motivationalen Prozesse vor, die die Teilnehmenden in der Auseinandersetzung mit verschiedenen Argumenten zum Konsum tierischer Produkte an sich beobachtet hatten. In der Zusammenschau lassen sich drei Typen von Beobachtungen unterscheiden, nämlich 1) die detaillierte Beobachtung spezifischer Emotionen in der Auseinandersetzung mit

Argumenten zum Konsum tierischer Produkte, 2) allgemeine Beobachtungen über die Bedeutung von affektiv-motivationalen Prozessen in dieser Auseinandersetzung und schließlich 3) Einsichten in kognitive Verzerrungen durch affektiv-motivationale Prozesse. Diese drei Typen sollen im Folgenden kurz erläutert werden.

1. Zwei Gruppen des Bachelor-Seminars befassten sich mit spezifischen Emotionen in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte. Die erste Gruppe arbeitete dabei Ängste als eine wichtige Emotion heraus, welche Studierende im Rahmen des Seminars erfahren haben. Vor allem die Auseinandersetzung mit ökologischen, gesundheitlichen und ethischen Themen war für die Teilnehmer häufig mit Angst behaftet. Eine zweite Gruppe untersuchte die Emotionen, welche authentische Videoaufnahmen aus

Schlachthäusern bei Akteuren auslösen. Dabei beobachtete die Gruppe ausnahmslos als negativ wahrgenommene Gefühle wie Ekel, Wut, Trauer und Mitleid. Die Gruppe hielt außerdem fest, dass auf die Verbalisierung dieser Emotionen sehr häufig eine Rechtfertigung des eigenen Essverhaltens folgte. Beide Gruppen bestätigen damit die in der in der psychologischen Literatur zum Fleischessen postulierte These, dass die Beschäftigung mit dem Konsum tierischer Produkte mit emotionalen Belastungen einher gehen kann, auf welche viele Akteure mit Verdrängungs- und Rationalisierungsstrategien reagieren (Frank 2017).

2. Im Master-Seminar widmeten sich zwei Gruppen der allgemeinen Bedeutung affektiv-motivationaler Prozesse in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte. Auf Basis der Tagebücher arbeitete eine Gruppe heraus, dass die Seminarthematik bei vielen emotional stark aufgeladen ist. Die starke Emotionalität wurde dabei häufig als hinderlich wahrgenommen, um sich in Debatten mit konträren Standpunkten und deren Argumenten konstruktiv auseinanderzusetzen. Stattdessen beobachtete die Gruppe anfänglich eine Tendenz zur Polarisierung in solchen Auseinandersetzungen, ein Phänomen, welches in der Kognitionspsychologie als ‚Einstellungspolarisierung' bezeichnet wird (Lord et al. 1979). Eine andere Gruppe konnte allerdings bei einigen Seminarteilnehmenden feststellen, dass die zu Beginn vertretenen Positionen im Vollzug der Beschäftigung mit weiteren Argumenten in Frage gestellt wurden. Dies empfanden die Studierenden häufig als verunsichernd und führte in den Worten der Seminargruppe zu einer „inneren Zerrissenheit" mit Blick auf den ‚richtigen' Standpunkt.
3. Eng verknüpft mit den geschilderten Ergebnissen der beiden vorherigen Typen sind die Einsichten in kognitive Verzerrungen, welche von den Studierenden im Seminar teilweise beobachtet wurden. Eine Gruppe stellte zum Beispiel die Tendenz unter Vegetariern und Veganern fest, sich gegenüber Fleischessern moralisch überlegen zu fühlen und dieses Gefühl insbesondere dadurch zu legitimieren, den eigenen Standpunkt für bewusster und elaborierter zu betrachten. Dies beeinflusste wiederum negativ die Bereitschaft, sich mit konträren Argumenten zu befassen. Ähnliche Beobachtungen berichtet eine weitere Gruppe, die sich intensiv mit solchen Überzeugungen beschäftigte, welche durch die Auseinandersetzung mit Argumenten im Seminarverlauf scheinbar unberührt blieben. Hier zeigte sich die Tendenz, dass solche Überzeugungen eine Art Immunität gegenüber konträren Argumenten hatten, d. h. Gegenargumente ungeachtet ihrer epistemischen Qualität die vorhandenen Überzeugungen nicht berührten. Noch einen Schritt weiter gingen die Ausarbeitungen einer Gruppe, welche in der Auseinandersetzung mit Argumenten zum Konsum tierischer Produkte identitätsgefährdende Momente entdeckten. Solche wahrgenommenen Identitätsgefährderungen konstituieren in der Folge starke Motivationen gegen eine offene Beschäftigung mit Positionen, die dem eigenen Standpunkt zuwiderlaufen. Die drei beschriebenen Gruppen gelangten dementsprechend allesamt zu Einsichten, welche in einer Reihe von kognitionspsychologischen Theorien diskutiert werden – z. B. die kognitive Dissonanz (Festinger 1957), die Verteidigungsmotivation (Masterson und Crawford 1982), die psychologische Reaktanz (Brehm 1966) oder der Bestätigungsfehler (Nickerson 1998).

Zusammenfassend bestätigte sich also einerseits die Vorannahme, dass die diskursive Auseinandersetzung mit dem Konsum tierischer Produkte im Sinne des sozial-intuitiven Modells stark

von affektiv-motivationalen Prozessen beeinflusst wird; andererseits ist es möglich, durch die Einbeziehung selbstreflexiver Elemente ein Gewahrsein für diese Prozesse zu kultivieren. Gemäß den Ergebnissen der studentischen Forschungsprojekte spielen hierfür außerdem die Achtsamkeitsmeditationen eine wichtige Rolle. Diese geben Studierenden nicht nur wirksame Techniken an die Hand, innere Ereignisse gezielter wahrnehmen und ‚aushalten' zu können, sie stellen zugleich Methoden dar, um mit diesen Prozessen offener und wohlwollender bei sich selbst und bei anderen umzugehen. Auf der einen Seite haben Studierende also die Achtsamkeitspraktiken als Zugangsweg zu persönlichen Werten und Emotionen erfahren, auf der anderen Seite ermöglicht der transparentere und offenere Bezug zu inneren Prozessen ein höheres Verständnis auch gegenüber anderen Positionen und schafft somit gemäß Aussagen vieler Studierender eine Grundlage für eine konstruktive Auseinandersetzung mit der Thematik des Konsums tierischer Produkte. Insofern lässt sich resümieren, dass die Seminare die Fähigkeit zur Auseinandersetzung mit affektiv-motivationalen Prozessen im Umgang mit Argumenten zum Konsum tierischer Produkte fördern und dadurch den Erwerb von Gestaltungskompetenzen für nachhaltigen Konsum – gemessen an Tagebüchern und Kleinforschungsprojekten der Studierenden – anregen konnte.

Es bleibt allerdings auch festzuhalten, dass das vorliegende empirische Material nur bedingt tauglich ist, um den Zusammenhang zwischen Achtsamkeitstraining und der Wahrnehmungsfähigkeit innerer Prozesse bzw. deren Zuverlässigkeit zu erfassen. Zum Beispiel berichten einige Studierende zwar in den Tagebüchern, dass sie sich aufgrund des Seminars intensiver mit dem Thema „Konsum tierischer Produkte" auseinandersetzten; daraus lässt sich aber nicht ableiten, ob dies durch die diskursiven oder selbstreflexiven Seminarelemente angestoßen wurde bzw. ob die Auseinandersetzung die Betrachtung affektiv-motivationaler Faktoren beinhaltet. Auch die häufig anzutreffende Einschätzung der Studierenden, dass das Achtsamkeitstraining introspektive Fähigkeiten kultiviert, kann kritisch betrachtet werden. Wenn nämlich Introspektion grundsätzlich nicht als zuverlässige Quelle zur Erfassung innerer Zustände angesehen wird (z. B. Wilson 2004), können introspektive Eindrücke kaum herangezogen werden, um diesem Zweifel entgegenzutreten. Um verlässliche Aussagen über die Bedeutung des Achtsamkeitstrainings im Rahmen des Seminars zu erhalten, wäre es folglich notwendig, ähnliche Seminarformate mit Kontrollgruppen zu vergleichen, in welchen solche Trainings nicht angeboten werden.

Sicher ist, dass auch ein Achtsamkeitstraining keine Gewähr für Einsichten in kognitive Verzerrungen bietet, die beispielsweise in der Beschäftigung mit dem Konsum tierischer Produkte einhergehen. Viele Tagebucheinträge demonstrieren, dass Studierende zum Teil eine einseitige Beschäftigung mit den Seminarinhalten pflegten. Vor allem sich vegetarisch oder vegan ernährende Studierende neigten dazu, den Fleischkonsum befürwortende Argumente entweder besonders kritisch oder gar nicht zu behandeln, während Argumente für einen Fleischverzicht wohlwollender akzeptiert wurden. Vor allem – aber nicht ausschließlich – bei Bachelor-Studierenden zeigte sich diese Tendenz zu Bestätigungsfehlern (Nickerson 1998) und Verteidigungsmotivationen (Masterson und Crawford 1982), die sich teilweise bis zum Ende des Seminars durchzog.

Um der Möglichkeit des Ausweichens bzw. der affirmativ-konfirmatorischen Beschäftigung mit Argumenten entgegenzuwirken, sind für einen weiteren Seminardurchlauf im Sommersemester 17

einige Änderungen des ursprünglichen Konzepts vorgesehen. Die wichtigste Veränderung wird sein, dass keine Argumentvielfalt in der Beschäftigung mit Positionen zum Konsum tierischer Produkte angestrebt wird. Stattdessen sollen Studierende im Hinblick auf vorgebrachte Argumente zu einem Konsens gelangen. Damit wird der beobachteten Tendenz einiger Studierender entgegengewirkt, sich in der Vielzahl vorgebrachter Argumente auf unreflektierte Weise derjenigen anzunehmen, die der eigenen Position entsprechen. Die Konsensbildung zielt demgegenüber darauf ab, vertiefte Reflexionsprozesse über nichtrationale Einflussfaktoren anzuregen, welche die Akzeptanz oder Zurückweisung konkreter Argumente beeinflussen. Wenn nötig, sollen während des Seminars gemeinsame Recherchen angestellt werden, um ggf. fehlende Hintergrundinformationen zur Beurteilung des Arguments einzuholen. Solche Rechercheprozesse werden später ebenso reflektiert wie die affektiv-motivationalen Prozesse, die im Laufe der Debatte entstehen.

5. Schlussfolgerungen

Der Ansatz des hier beschriebenen Seminarkonzepts stellt Studierende vor die Aufgabe, sich zu kontroversen Themen mit verschiedenen Argumenten auseinander zu setzen, ähnlich wie dies in der BNE am Beispiel von Dilemmata und Polylemmata als didaktischer Ansatz etabliert ist (Stoltenberg und Burandt 2014). Es ging jedoch nicht darum, anhand dieser Auseinandersetzung kognitive Fähigkeiten etwa im Bereich Bewertungskompetenz zu schulen. Stattdessen stellte das Seminarkonzept Raum und Anleitung zur Verfügung, damit die Studierenden ihre Erfahrungen im Erleben dieser Auseinandersetzung durch die komplementär angelegten introspektiven Phasen im Seminar selbst zum Gegenstand wissenschaftlicher Beobachtung machen konnten. Wesentlich dabei waren die Schulung des Gewahrseins und die methodisch geleitete Erforschung der eigenen emotionalen und affektiven Prozesse, die im Anschluss an die Introspektion gemeinsam reflektiert wurde. Das in diesem Beitrag vorgestellte experimentelle Lehr-Lern-Format leistet mit dieser Schwerpunktsetzung nach unserer Auffassung hierzu einen doppelten Beitrag. Zum ersten rückt es die Auseinandersetzung mit emotionalen und motivationalen Facetten in den Mittelpunkt hochschuldidaktischer Arbeit für eine nachhaltige Entwicklung. Affektiv-motivationale Aspekte sind zwar in der gegenwärtigen hochschulischen BNK konzeptionell angelegt, führen aber bislang in den konkreten didaktischen Ansätzen zur Kompetenzförderung und der empirischen Forschung zur Kompetenzmessung weitgehend ein Schattendasein. (Zlatkin-Troitschanskaia und Seidel 2011). Zum zweiten erschließt das dargestellte Seminarkonzept ein Handlungsfeld, das angesichts der mit populären Begriffen wie „post-truth“ (Wort des Jahres 2016 des Oxford English Dictionary) bzw. „post-faktisch“ (Wort des Jahres 2016 der Gesellschaft für deutsche Sprache) markierten Verschiebungen in öffentlichen Diskussionen eine hohe Relevanz für die hochschulische BNE aufweist. Die so bezeichneten Verschiebungen werden dadurch charakterisiert, dass weniger die wissenschaftliche Belastbarkeit von Aussagen über den Einfluss auf öffentliche Diskurse entscheiden, sondern vielmehr die affektive und emotionale Resonanz, die sie auszulösen vermögen. „Wahr“ ist in dieser Perspektive nicht nur das, was belegbar ist, sondern das, was mit den vorherrschenden Überzeugungen und Werten der Menschen korrespondiert (vgl. Lubchenco 2017). Für Fragen der Kommunikation, Partizipation und Bildung im Kontext nachhaltiger Entwicklung stellen die postulierten post-faktischen Tendenzen massive Herausforderungen dar. Sie fordern Lehrende und

Lernende dazu heraus, sich reflexiv mit der Frage auseinanderzusetzen, wie Emotionen und affektive Prozesse die Wissensbildung zu Fragen nachhaltigen Konsums beeinflussen. Das beschriebene Seminarformat stellt unserer Ansicht nach einen vielversprechenden Versuch dar, sich dieser Herausforderung zu stellen.

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9.5. Healthy eating and sustainable nutrition through mindfulness? Mixed method results of a controlled intervention study

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Abstract

Mindless eating is at the core of many ecological and social problems associated with modern nutritional behavior. Mindfulness training has been proven to be an efficient means for improving healthy nutrition. First, it enables reconnection with internal hunger and satiety cues, instead of external cues. Second, it supports making deliberate choices against unconscious eating patterns. It is less clear whether training in mindfulness can be similarly effective for sustainable nutritional habits, defined here as socially and ecologically responsible consumption behaviors over the whole consumption cycle. A controlled mixed method intervention study employed an adapted mindfulness-based intervention (MBI) to investigate such potential effects in a healthy, adult student population (n = 76 /n = 11). Results from both qualitative and quantitative data indicate that the MBI exerts strong effects on mindful eating, whereas effects on sustainable nutritional behaviors are limited and only appear in the qualitative data as content concerning pre-behavioral stages of consumption, such as attitudes and intentions. First follow-up results suggest a slower process for changing nutritional behaviors toward more sustainable food choices. Based on the integrated mixed method results, we conclude that MBIs are an effective way to change unhealthy, mindless eating habits. To obtain stronger effects on sustainable nutritional behaviors, we suggest MBIs with a specific focus on sustainable nutritional behaviors and openly advertising the aim of the intervention in order to create a common intention in target groups who are looking for ways to put their altruistic intentions into practice, e.g. in sustainable consumption education programs.

Keywords: Mindful eating, healthy eating, sustainable consumption, mindfulness

1. Introduction

It is widely known that contemporary nutritional is related to multiple societal and environmental problems. These health problems of virtually epidemic proportion, such as obesity, are mainly found in the western hemisphere, and are rooted in the ongoing development of the global food system. The focus of production on processed, low-priced and highly marketed food (Swinburn et al., 2011) and changes in diet composition – for example, a shift towards higher intake of animal products – are key factors for associated problems (Tilman & Clark, 2014).

At the same time, modern developments in production and consumption of food have been singled out as a major cause of climate change (Steinfeld, 2006). According to leading international organizations

and researchers, the food production sector causes, among other detriments, more greenhouse gas emissions relevant to climate change than any other industry (ibid.). Apart from environmentally-friendly food production, public health and social justice are both essential parts of the United Nations' Agenda for sustainable development (United Nations, 2017). Contemporary Western diets are a serious threat to this agenda, making the establishment of sustainable food production and consumption one of the main tasks for supporting sustainable development. Because the food industry is highly dependent on demand, consumers are especially responsible for contributing to the accomplishment of this task.

Many consumers in western countries seem to be inclined to eat more sustainably. For example, they express their intentions to consume less animal products and see this as one aspect of becoming healthier and protecting both the environment and animal welfare (Lee & Simpson, 2014; Radnitz, Beezhold, & DiMatteo, 2015). In Germany, for example, a willingness to reduce consumption of animal products is affirmed by two thirds of the population (Scholl, Gossen, Holzhauer, & Schipperges, 2016). Despite a recent slight decrease in meat consumption in western countries, overall consumption remains much higher than what is ecologically sustainable (Lee & Simpson, 2014). Pre-behavioral stages of consumption such as attitudes and intentions, which are deemed important predictors of sustainable behavior (Bamberg & Moeser, 2007), thus do not seem to translate into immediate behavioral change. Apart from extensive research concerning the attitude-behavior-gap (Kleinhückelkotten, Neitzke & Moser, 2016), there are many other explanatory approaches to this phenomenon (Dewaele et. al, 2018). Frank (2017), for example, argues that people lack cognitive awareness about the realities of food production, consumption and the corresponding consequences for health, environment and animal welfare and that this lack of awareness is due to widespread dissociation between food production and consumption at both the societal and individual levels.

One approach that appears promising for tackling these challenges is the practice of mindfulness in the context of nutritional behavior. The general concept of mindfulness stems from Buddhist philosophy and psychology, where mindfulness is seen as an important means by which human tendencies toward greediness, aversion and delusional thinking can be counteracted, and ethical attitudes and behaviors cultivated that are oriented toward benevolent relations to the animate and inanimate world (Grossman, 2015). To cultivate mindfulness, a variety of practices can be used to systematically train awareness and emotional (non-) reactivity as well as enhance awareness of internal processes such as thoughts, emotions and bodily sensations (Chiesa & Malinowski, 2011). In particular, current research suggests that mindfulness practice can help individuals cultivate conscious and healthy eating behaviors (Beshara, Hutchinson, & Wilson, 2013; Kristeller, Wolever, & Sheets, 2014). Another strand of research suggests that mindfulness carries the potential to foster sustainable consumer behaviors (e.g. Rosenberg, 2004; Armstrong & Jackson, 2015; Ericson et al., 2014; Fischer et al, 2018). However, empirical studies about the practice's potential to stimulate eating behaviors oriented toward the ecological and social dimension of sustainability remain absent.

This paper will contribute to closing this gap by investigating the effects of a consumption-specific mindfulness-based intervention (MBI) on mindful eating *and* sustainable nutritional behavior in a mixed method approach employing both qualitative and quantitative data. It is based on a larger

research project called “BiNKA”[16], where the focus was to pioneer explorations into the general effects of a consumption-specific MBI.

After outlining the study’s theoretical background, the research procedure is explained and findings are presented. The last part of the paper comprises a discussion of results, followed by a consideration of research limitations, and concluding remarks.

2. Mindfulness and nutritional behavior

Eating has been deemed an “overlearned behavior” (Mantzios & Wilson, 2015) that is carried out absent-mindedly, or “mindlessly” (Kristeller & Epel, 2014). Unconsciousness about our nutritional behavior extends from the origin of our daily meals, to “*what*” we eat, “*how much*”, “*how*”, and “*why*” we eat. This entails varying degrees of automaticity alongside strongly habitualized consumption patterns (van't Riet et al., 2011). As a consequence, eating is often initiated according to external, instead of internal, cues (e.g. mealtimes or other social pressures, instead of physical hunger). In fact, food-related behaviors are always embedded in socio-cultural and structural contexts, reducing consumers’ reflexivity concerning personal intentions and attitudes, as well as their knowledge about the origins of food.

Furthermore, as Mantzios & Wilson (2015) point out, eating is often a reaction to impulses or it is an emotional coping strategy for avoiding or suppressing negative thoughts and emotions, instead of being primarily based on physical needs or rational argument. Thus, despite general willingness among consumers to eat in a healthy and more sustainable manner and an increasing awareness for this, strong habits and automaticity, impulsivity related to external triggers, and using food as a coping mechanism often restrict the control that people have over their food purchases and consumption (Bahl, Milne, Ross, & Chan, 2013).

More recently, scholars have suggested that the cultivation of *mindful nutritional behavior* could address these challenges (Bahl et al., 2013; Marchiori & Papies, 2014; Dutton, 2008). Using the definition of mindfulness “*as the unbiased awareness that emerges through intentionally and continuously paying attention to subjective momentary experience with an open, accepting, benevolent, and compassionate attitude*” (Boehme et al., 2016, p.6), mindful nutritional behavior can be understood as nutritional behavior accompanied by an unbiased awareness of physical and emotional sensations, feelings and thoughts. This behavior includes shopping for food, eating, being otherwise exposed to food, as well as discarding food. To count as being mindful, all these ways of relating to food must be grounded in an open, accepting, benevolent, and compassionate attitude (see also Framson et al., 2009).

16 The BiNKA-study, named after a German acronym for “Education for Sustainable Consumption through Mindfulness Training”, hereinafter referred to as MBI or intervention, as this paper focusses only on a specific part of the bigger study. For further details about the background and the project see Stanszus et al. (2017).

In fact, the practice of mindfulness has been successfully applied to reconnect people with healthy, mindful eating behavior (Bahl et al., 2013; Marchiori & Papies, 2014; Dutton, 2008). It has been particularly successful in supporting therapies for eating disorders, mainly binge eating and obesity (Alberts, Mulkens, Smeets, & Thewissen, 2010; Bahl et al., 2013; Godfrey, Gallo, & Afari, 2015; Kristeller, Wolever, & Sheets, 2014; Miller, Kristeller, Headings, & Nagaraja, 2014; Warren, Smith, & Ashwell, 2017; Pinto-Gouveia et al. 2017). More specifically, it has been shown that combining mindfulness training with the intention to change eating behavior has an effect on the aforementioned psychological mechanisms of mindless eating. Reduced overall automaticity in eating and shopping for specific goods and increased non-reactivity to externally initialized cravings were shown by Jacobs et al. (2013), Mantzios & Wilson (2015) and most recently by Tapper et al. (2018). A rise in general awareness about eating behavior, reported in all studies, was often accompanied by increased responsiveness to internal, physical cues instead of impulsive or emotional triggers. The growth in awareness often extended to specifics such as *how* we eat (slow, fast, with distractions such as watching tv, reading, or day-dreaming) and *what* we eat, and resulted in a documented weakening of habitual patterns (Warren et al., 2017; Miller et al., 2014; Kristeller et al., 2014). This development also supported more deliberate and healthier choices (Bahl et al., 2013; Warren et al., 2017; Kristeller & Lieberstein, 2016; Keesman, Aarts, Häfner, & Papies, 2018). Further detailing which aspect of mindfulness supports these effects, Keesman et al. (2017) describe the facet “decentering”. This facet of mindfulness describes the practice of distancing oneself from immediate sensations and focusing on the impermanence of one’s state of mind, e.g. thoughts and bodily stimulations or cravings. According to the authors, decentering targets the underlying process of automatic food cue reactions in the body, consequently enabling a more deliberate, de-automatized choice of what and when to eat.

These various effects are interrelated and interdependent. However, it should be apparent that this seeming increase in general awareness allows for changes in habitual response patterns rooted in emotions and impulses. The ability to take a decentered perspective allows one to respond to inner satiety cues and in consequence leads to more deliberate and healthy choices. The evidence presented here suggests that mindfulness training enables people to understand and de-automatize their previous seemingly remote-controlled behavior and to increase their general health and well-being.

3. Mindfulness and sustainable consumption

For similar reasons, multiple scholars have argued that mindfulness training may also have the potential to promote sustainable nutritional behavior. Such behavior is defined here according to the cube model of sustainable consumption behaviors (Geiger, Fischer, & Schrader, 2017) as individual acts for acquiring, using and disposing of food that do not compromise the ecological and socio-economic living conditions of any other people, currently living or in the future, in such a way that they can’t satisfy their needs.

The literature suggests different mechanisms through which mindfulness can be cultivated, leading to increased sustainable consumption (for a more detailed discussion see Fischer et al., 2017; Geiger, Grossman, & Schrader, 2019):

1. *Disruption of routines*: as previously discussed regarding mindless eating, unconscious consumption routines can also entail unsustainable ones. By enhancing introspective capacities, mindfulness practice leads to an increased awareness of the inner states and processes that usually prompt habitual behaviors (Rosenberg, 2004; Bahl et al., 2016) and thus supports deliberate consumption choices. Concerning sustainable food consumption, Hunecke and Richter (2018) looked at the relationship between different facets of mindfulness and self-reported sustainable food consumption behavior. They found that one facet "acting with awareness", had a direct, positive relationship with sustainable food consumption behavior, supporting the argument for the first potential mechanism.
2. *Physical and psychological well-being*: as mentioned above, there is ample evidence that mindfulness practice is instrumental for physical and psychological health and well-being (Eberth & Sedlmeier, 2012; Grossman et al., 2004). Psychological well-being has been discussed both as a consequence of and a precondition for sustainable behavior (Corral Verdugo, 2012; Kasser, 2017), and physical health behavior was shown to correlate positively with ecological conservation behavior (Geiger, Otto, Schrader, 2018).
3. *Values*: Mindfulness practice may be conducive to the clarification of values and to supporting the role of intrinsic and socially oriented values in people's lives (Ericson et al., 2014, Kasser et al., 2014) and decreasing the importance of material values (Burroughs & Rindfleisch, 2002).
4. *Pro-sociality and compassion*: pro-social behaviors are explicitly increased through meditation practices (Lim, Condon, & DeSteno, 2015; Leiberg et al., 2011). This process is seen to be initiated through the development of compassion (Condon et al., 2013). Compassion and altruistic values in turn are positively linked to pro-environment intentions and behavior (deGroot & Steg, 2008; Geiger & Keller, 2017; Pfattheicher, Sassenrath, & Schindler, 2015).
5. *Congruence*: Self-perceived inattention to everyday experiences was found to be associated with a widening of the attitude-behavior gap (Chatzisarantis & Hagger, 2007; Ruffault, Bernier, Juge, & Fournier, 2016). As mindfulness implies the inverse of inattentiveness, i.e. enhanced awareness of immediate daily experiences, mindfulness may be associated with closure of the attitude-behavior gap. In the field of sustainable behaviors this would imply an enhancement of behaviors, as sustainability-related attitudes and intentions are usually rather high (Eurobarometer, 2014).

Expanding this topic specifically to nutritional behavior, Thích-Nhất-Hạnh & Cheung (2012) suggest that mindfulness practice could create a heightened awareness for the inter-connectedness of individual food consumption with broader consumption and production spheres. Rosenberg (2004) defends this assertion, suggesting that mindfulness training re-instills a sense of interrelatedness between people, supporting non-consumerist satisfiers for people's needs.

In conclusion, the aforementioned studies provide evidence for a relationship between mindful behavior and sustainable nutritional behaviors. However, individual mindful eating is not *per se* sustainable, as food production, use and disposal of foods might create social and environmental problems that undermine the agenda of sustainable development (Kjærgård, Land, & Bransholm

Pedersen, 2014). In this sense, the positive *self-oriented* aspects of mindful eating need to be accompanied by altruistic, or "*other-oriented*" *aspects* (environment, society) in order to become a promising practice for fostering sustainable consumption. No empirical inquiry has so far undertaken to find out whether the development of *mindful eating patterns* comes along with *sustainable consumption behaviors* reflecting such an orientation towards others.

This paper will contribute to closing this gap by exploring the following research questions:

- Does the adapted MBI have effects on mindful eating, confirming previous positive research findings?
- Does the MBI have effects on pre-behavioral stages of consumption such as intentions and attitudes, as predictors for sustainable eating behavior?[17]
- Does the MBI have effects on participants' actual nutritional consumption behavior that is related to aspects of sustainability?

4. Methods & measures

4.1. Study Design

For this intervention study, a fully integrated mixed method model design was used (Foscht, Angerer, & Swoboda, 2007). The design accounts A) for the pioneering, explorative character of the research

and the lack of precise data about which facets of mindfulness are trained through which practices, as well as B) for the difficulties that have been reported by many other studies to measure mindfulness with quantitative self-report measures alone (see Van Dam et al., 2018; Chiesa, 2013; Grossman, 2011) (See Figure 1).

17 We included pre-behavioral phases of consumption, such as attitudes and intentions (Bamberg & Moeser, 2007), for two reasons: First, they are thought to be relevant predictors for explaining actual behavior, especially in the area of nutritional behavior (e.g. Berndsen & van der Pligt, 2004). Second, the integration of different stages of the consumption process allowed for an inquiry into the relation between mindfulness and sustainable nutritional behavior on a larger scale. This accounts for the novelty of the research area and its explorative character.

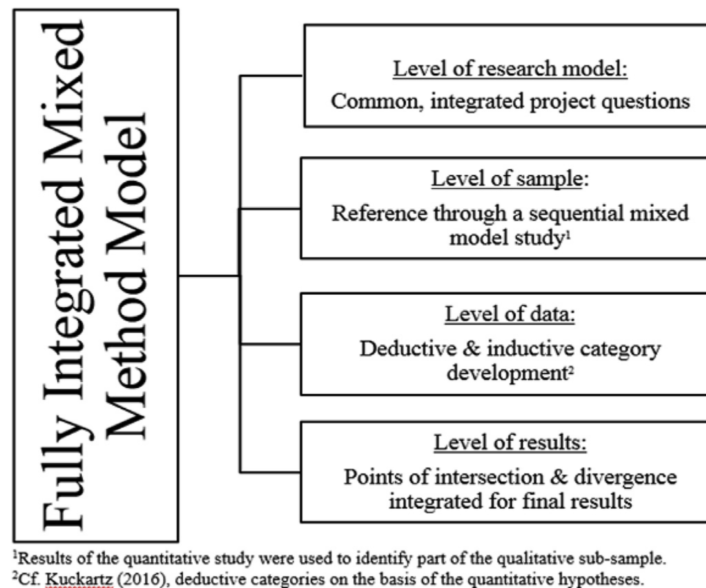

Figure 1: Integrated mixed method model.

Mindfulness is a complex and multifaceted concept and, more importantly, a highly individual and subjective experience (Grossman, 2010). To be able to cover participants' experiences and the potential effects of the MBIs as holistically as possible and thus to answer criticism regarding measuring effects of mindfulness with a too narrow methodological approach, a quantitative pre-/post-/follow-up study was combined with in-depth, semi-structured interviews (with a representative sub-sample of participants post-intervention) for a joint analysis (Kuckartz, 2016; Flick, 2014). Equal importance was ascribed to the two databases. The research design can be described as a fully integrated method model (Foscht et al., 2007), because it allowed the integration of hypothesis testing and hypothesis generation in a single study as well as parallel data collection with a theoretical sampling and an integrative analysis strategy. As presented in Figure 1, the design spanned all levels of the research process. Integrated research questions and, on the sample level, connecting quantitative and qualitative study through partly sub-sampling the interviewees according to quantitative results of the pre- and post-studies (sequential data collection) formed the basis of the design. On the data level, the qualitative interview guideline and the structuring of transcripts via the deductive codes were based on the quantitative hypotheses and the corresponding variables. However, inductive categories were generated as well. The results were compared and interpreted together to create sound and synthesized results.

4.2. Procedure

The MBI was advertised to university students in Berlin[18] by means of an inter-university website

18 The issue concerning the market coverage of sustainable food alternatives and their availability is deemed an important driver for broader adoption of sustainable nutritional behaviors (Di Gulio et al., 2014). Individuals' food environment is highly relevant for food choices and can even influence social norms toward specific products (Frank, 2017). In this paper, however, the focus remains on individual

connected to the sports program; announcements offered a stress-reduction program without disclosing the study's focus on consumption (the program was also conceived to enhance the well-being of attendees). In a pre-study meeting it was explained that students were expected to complete a series of questionnaires at different points in time in exchange for cost-free participation. Additionally, some students were asked to participate in a post-intervention interview. In accordance with ethical guidelines of the German Psychology Association, participation was completely voluntary, students were reimbursed in the form of a remitted course fee, and personal data at different measurement times were tracked via an anonymous personal code, so that individual persons could not be identified. Psychopathological conditions (e.g. clinical depression) were ruled out before the first session through a short screening executed by the mindfulness trainer. As no clinical population was involved and all participants were of legal age, a written statement was deemed unnecessary by the Ethical Committee of the Technische Universität Berlin.

Enrollees were randomly assigned to either the intervention group (IG), who received the mindfulness-based intervention (MBI) right away, or a wait-control group (CG) who received the MBI after the IG had finished. Three courses were run for each group, with group size varying between 12-13 participants, mirroring normal group sizes for MBSR-trainings.

Quantitative data on mindful and sustainable eating was gathered twice: within a week before the training started (pre) and within a week after the training was completed (post). In a follow-up measurement conducted seven months later, mindful eating was not assessed. Only the main variables of the general study on mindfulness and sustainable consumption were collected. Assessments were completed online. An invitation and two reminder emails were sent for each assessment.

The qualitative data was gathered through semi-structured interviews conducted post-intervention. Interviews were carried out by three main investigators from the project who were not involved in the teaching activities for the intervention. The interviews lasted between 35 and 70 minutes. All interviews were audiotaped and transcribed verbatim. Course participants also wrote diaries reporting their experiences of daily mindfulness practice. This was additionally included in the analysis.

4.3. Participants

We aimed at recruiting a minimum of 72 (12 x 6) participants, to mirror usual group size for MBSR courses, while ensuring $n > 30$ in the intervention and control group for minimum statistical robustness and allowing for potential dropouts. Slightly overbooking each course, we initially recruited $n = 79$ students to participate in the study. $n = 40$ were assigned to the intervention group (IG) and $n = 39$ to the wait group (CG), with a random shuffle function applied to the running subject number.

behavior in the given context of the city of Berlin, Germany. Organic, vegetarian and even vegan food is abundant and available in all conventional supermarkets and a widespread network of organic supermarkets. The active and control groups (of the quantitative sample; there was no control group for the qualitative sample) were exposed to the same conditions for food choices, thus accounting for context effects.

Three students dropped out of the intervention group before the training started, leaving a starting student sample of n = 76 (n_{IG} = 37/ n_{CG} = 39) with a mean age of M=31 years, 73.4% were women. Nine women and two men (80% women, mean age M= 30 years) were selected for the semi-structured in-depth interviews. Five were selected on a random basis. The other 6 were selected because their quantitative results indicated extreme pre-post differences in either mindfulness or sustainable consumption measures. For various reasons some participants were unavailable. However, the final sample of interviewees represents a typical subsample of the entire cohort and is not a sample that tends toward the extreme ends of the quantitative data. The subsample thus does not differ from the whole sample in terms of age, gender, previous experience with mindfulness as well as results on mindfulness, mindful eating and sustainable consumption measures. Attendance of interviewees during the course was somewhat higher, as compared to the whole sample (see Table 1).

Table 1: Demographic data of interview participants.

No.	**ID**	**Group**	**Frequency of participation**	**Age**	**Gender**
1	IG1STU10	IG	9	30	female
2	IG3STU12	IG	9	35	female
3	IG3STU4	IG	9	41	female
4	KG3STU9	CG	8	27	male
5	IGSTUX*	IG	-	-	-
6	IG1STU2	IG	8	36	female
7	IG2STU8	IG	8	30	female
8	KG3STU2	CG	9	25	female
9	KG3STU3	CG	8	29	male
10	KG2STU17	CG	9	23	female
11	KG2STU9	CG	7	30	female

Note: CG = (waiting list) control group. IG = Intervention group. 1-5 were chosen randomly *Values got lost.

4.4. Intervention

The MBI included different exercises from sustainable consumption education programs put into the format of the well-established Mindfulness-based-stress-reduction (MBSR) program developed by Jon Kabat-Zinn (1991, c1990). Similar to the MBSR training, the consumption-specific MBI comprised eight weekly group sessions (of 90 minutes each), one additional half-day session after week six ("day of mindfulness", four hours) and individual daily practice (20 minutes). The training included different meditation techniques (body scan, breathing meditation and loving-kindness or "metta" practice), as well as different educational formats such as group discussions, inquiry and guided reflections. Simple movement or yoga exercises were included, too. The first four weeks of the MBI were focused directly on cultivating mindfulness, on introducing the general concept of mindfulness, on obstacles and challenges in meditation and on the notions of dissatisfaction and emotional intelligence. Weeks five

to eight subtly introduced the topic of consumption into the mindfulness framework and themes were addressed, such as needs and desires, compassion and kindness, mindful consumption and a world characterized by mindful awareness. The topic of nutrition was addressed with the standard MBSR raisin exercise (ibid.) daily homework (mindful intake of food and mindful grocery shopping as informal exercises) and mindful eating exercises in the course (eating in silence as a group exercise during the day of mindfulness). For further details on how the training was developed and what it entails, see Stanszus et al., 2017.

5. Measures

5.1. Quantitative study

5.1.1. General Mindfulness

The *C*ompre*h*ensive *I*nventory of *M*indful *E*xperiences (CHIME) by Bergomi, Tschacher, and Kupper (2014) comprises 37 items to measure eight different facets: *acceptance (*e.g. "I see my mistakes and difficulties without judging myself"), *acting consciously* (e.g. "It is easy for me to stay focused on what I am doing"*), inner awareness* (e.g. "When I am sitting or lying, I perceive the sensations in my body"), *outer awareness* (e.g. "I perceive colors and shapes in nature clearly and consciously"), *decentering* (e.g. "In difficult situations, I can pause for a moment without reacting immediately"), *openness (*e.g. "I try to stay busy to keep specific thoughts or feelings from coming to my mind"), *relativity* (e.g. "In everyday life, I am aware that my view on things is subjective and does not necessarily correspond to facts") and *loving insight* (e.g. "When I have needlessly given myself a hard time, I can see it with a bit of humor"). All items were assessed on a 7-point frequency scale where only the two extremes were labelled, with "almost never" (0) and "almost always" (6). Analyses were based on the overall scale mean (Cronbach`s α = .88).

5.1.2. Mindful Eating

To assess mindful eating, a short version of the Mindful Eating Questionnaire by Framson et al. (2009) was constructed. Two items for each factor *disinhibition* ("I stop eating when I'm full, even when eating something I love"), a*wareness* ("Before I eat I take a moment to appreciate the colors and smells of my food"), *distraction* ("My thoughts tend to wander while I am eating") and *emotional response* ("When I'm sad I eat to feel better") were retained. Only one item for *external cues* ("I recognize when food advertisements make me want to eat") was retained because the second item showed negative loadings in a pre-test ("I recognize when I'm eating and not hungry."). As for the CHIME scale, all items were assessed on a 7-point frequency scale where only the two extremes were labelled, with "almost never" (0) and "almost always" (6), (Cronbach`s α = .62). For a full list of items, see supplementary material A.

5.1.3. Attitudes towards Sustainable Food Consumption

An attitudinal scale was constructed following the recommendations for measurements of attitudes by Ajzen (1991). The 8-item scale on attitudes for sustainable consumption behavior (A-$SCB_{NUTRITION}$: α = .65,) reflected the main aspects of the SCB-scale (e.g. “Fair prices for small scale farmers are important”). Items were assessed on a 7-point Likert scale with every second option labelled “completely disagree” (0), “rather disagree” (2), “rather agree” (4) and “completely agree” (6). For a full list of items, see supplementary material A.

5.1.4. Sustainable Food Consumption

Sustainable food consumption was measured with the Sustainable Consumption Behavior- Nutrition ($SCB_{NUTRITION}$) scale by Geiger, Fischer et al. (2017). The 17-item scale (α = .73) spans all three consumption phases and both dimensions of sustainability, ecological and socio-economic impacts (e.g. “I buy organically grown/fair trade products”, “I cook in an energy-saving way” or “I buy snacks and drinks in one-way packaging”- which was reverse coded). Items were assessed on a 7-point scale with every second option labelled with “never” (0), “sometimes” (2), “often” (4) and “always” (6). Answers for daily behaviors (e.g. preferred main courses) were labelled with “never” (0), “once a week” (3) and “daily” (6). For a full list of items, see supplementary material A.

5.2. Qualitative study

5.2.1. Interviews

Before the start of each interview, participants were asked for consent to audiotape the interview and were reminded of their voluntary attendance as well as their right to not answers or to stop the interview. After the official procedure, participants were invited to complete a one-minute breathing meditation to settle into the interviewing space and set the focus for the dialogue. To account for both the explorative character of the study and to gather data on the specific research questions, the interview guideline was developed in two parts. The first part of the interview invited open-ended responses about participants’ general experiences in the MBI and practices at home that they deemed important to elaborate upon (“What did you experience in the training and with your practice at home?”). They were encouraged by the interviewer through follow-up questions to deviate toward whatever they considered important to describe. In the second part, questions with more detail guided the interview, such as questions for eliciting a general description of their eating and food shopping routines and possible changes to those behaviors over the last weeks (“Would you elaborate on your general nutrition behavior please?”, “Did you experience any changes in relation to your general nutrition behavior in the past weeks?”) or their understanding of consumption and sustainable consumption (“What exactly is consumption to you?”, “How would you describe sustainable consumption?”). Interviewees were further asked whether and how they perceived themselves to be more mindful, according to their understanding of the concept (“In your opinion, did you develop

more “mindfulness?”, “How would you know that/ how do you experience that?”). In the end, they were encouraged to ask any open questions and were also informed about the state of the study and the next steps of analysis.

5.2.2. Data analysis

A qualitative content analysis (CA) based on Kuckartz (2014; 2016) provided the basis for data analysis. A deductive coding scheme was developed to reconstruct the subjective experience of participating in the MBI. As suggested by Kuckartz (ibid.) and Ramsentaler (2013), the quantitative hypotheses and the interview guideline were used as a grid for developing a first version of the deductive code system, which was tested against the material. Inductive categories were developed alongside the coding process, accounting for the likely appearance of unanticipated effects. Subcategories were subsequently elaborated within an iterative coding and refining process until 25% of the data was unambiguously and completely categorized in accordance with the scheme. Two student assistants coded the remaining data material. Based on the codings, the first and second author wrote individual case summaries (Kuckartz, 2014), synthesizing and abstracting the central effects of the intervention and its influence on participants’ consumer behaviors.

6. Results

Results of the qualitative study will be directly compared and complemented with results from the quantitative survey, creating an integrated view on the effects of the consumption specific MBI.

6.1. General mindfulness

To establish the effectiveness of the MBI with regard to general mindfulness experienced by the participants as a prerequisite for further mindfulness-based effects, results on that measure will be presented first.

In the interviews, a perceived increase in general or specific areas of mindfulness was articulated by all participants. They usually associate mindfulness with higher attentiveness to ongoing experience, a more relaxed state of being and the development of ethical qualities, such as empathy, compassion and equanimity. Four statements help exemplify the effects:

“[…] I am in any case more mindful than before. Definitely.” IG2STU8
INTERVIEWER: “Ok, so you mean you became more mindful [through the MBI]? I: Definitely.” KG3STU3

„In a clearer awareness, different perception of people: - more emphatic, more mindful.” KG2STU17 (Excerpt from training diary)

"I had the feeling that [through the practice] a lot of things did not bother me as much anymore, I could stay connected with myself and better observe what is REALLY happening." IG1STU2

In the quantitative study, the changes in the CHIME measure over the course of the MBI were compared between the IG and CG. A 2x2 ANOVA with *experimental group* (IG-CG) and *measurement point in time* (pre-post) as factors revealed a significant interaction effect F (1,62) = 33.9, p= .001, η_p^2 = .354), a significant main effect for *measurement point in time* F (1,62) = 26.8, p= .001, η_p^2 = .302) and no main effect for experimental group F (1,62) < 1). Post-hoc t-tests indicated substantial changes in the CHIME measure for the IG only (t (27) = 5.61, p < .001; d_{KORR} = 1.32, see Figure 2, KG: t (35) = -0.73, p = .473).

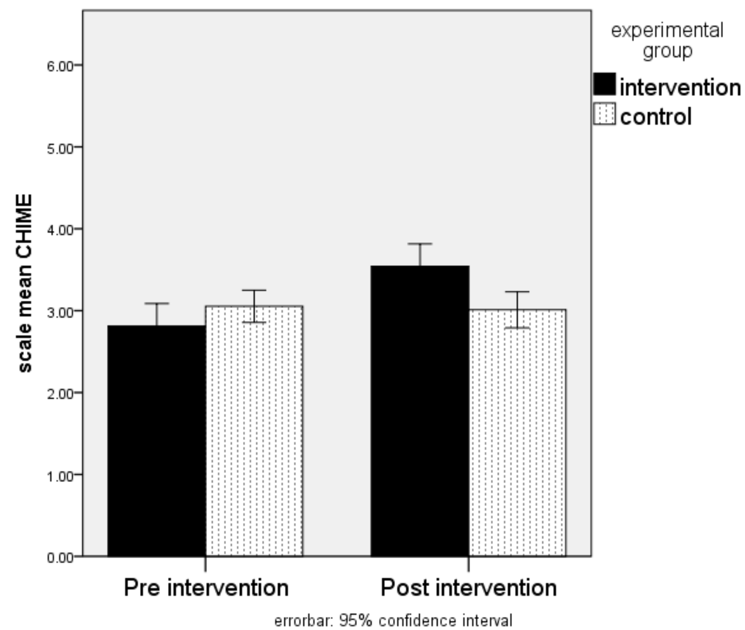

Figure 2: Effects of the MBI on CHIME measure.

Table 2 Summarizing overview of effects.

Effect categories: Interviewees:	**I. Effects on mindful eating**	**II. Effects on sustainability-related pre-consumption phases**	**III. Effects on sustainability-related consumption behavior**
IG1STU2	X	X	
IG1STU10	X	X	
IG2STU8	X	X	
IG3STU4	X		
IG3STU12	X		
IGXSTUX	X	X	X
KG2STU9	X	X	
KG2STU17	X		

KG3STU2	X	X	
KG3STU3	X	X	X
KG3STU9	X	X	X
Total qualitative	**11**	**9**	**3**
	100%	**82%**	**27%**
Total quantitative effect size	η_p^2= **.131**	η_p^2=**.002**	η_p^2=**.000**

Note: Total quantitative results are based on the whole sample (n= 64). The effect sizes reflect a strong effect of the training on mindful eating and no effects on pre-behavioral consumption phases and behavior itself.

Table 2 gives a more detailed overview over the intervention´s effect on the different mindfulness facets. As can be seen, participants increased their mindful experiences significantly in all facets except the outer awareness facet, with strongest effects on acceptance and decentering. Acting consciously, capturing an antidote to automaticity, also increased in the intervention group. Weaker effects were observed in the three attitudinal facets of openness, relativity and insight.

Table 3: Effects of 2x2 ANOVA repeated measurements for all facets of mindfulness.

dV: mindful experiences and its facets:	Interaction effects: experimental condition x sample		
	F	*p*	η_p^2
CHIME	**33.9**	**<.001**	**.354**
1. Acceptance	**29.4**	**<.001**	**.322**
2. Decentering	**21.4**	**<.001**	**.257**
3. Acting consciously	**15.9**	**<.001**	**.204**
4. Inner awareness	**10.5**	**=.002**	**.144**
5. Outer awareness	3.3	= .075	.050
6. Openness	**8.6**	**=.005**	**.122**
7. Relativity	**8.3**	**=.005**	**.118**
8. Insight	**8.3**	**=.006**	**.118**

6.2. Mindful eating

Consistent with the results for general mindfulness, the analysis of the qualitative data also showed effects on mindful eating for all participants. The following section will describe the observed effects. Furthermore, selected quotations from participants will be presented to convey the essence of the theme, as well as to indicate how interwoven and interdependent the effects on the three aspects of mindless eating are.

A rise of general awareness and reflection concerning eating behavior was reported by interviewees. This resulted in a greater awareness of one’s level of physical hunger or satiety, alongside the capability to better respond to those internal cues, instead of e.g., habitually finishing one’s plate. The following quotes are examples:

"The slower and more aware I eat [compared to fast and timely restraint meals before the training], the better my stomach feels and the earlier and easier I notice when I am full." IG3STU4

“And through that practice [of mindful eating] I realized that I notice when I am full much faster. I found that quite astonishing and actually do pay more attention to that now in my day-to-day life. That doesn’t mean that I can always stop the eating impulse, but I do realize, puh, I am full. I had previously pushed that away or went straight over it.” IG1STU2

Heightened and intensified pleasure while eating due to this rise in awareness or a more nuanced experience of different tastes was also a common development counteracting automaticity:

"*It is fascinating what you can notice in the mouth if only you pay attention to it. The sweetness of grapes I perceived as much more extreme than I expected, to let a piece of banana melt on my tongue is an interesting experience, as is the neutralizing effect of coffee afterwards."* IG3STU12

A recurring topic mentioned by participants concerned realizations about routinely and automatically eating while doing other things at the same time, such as watching TV, checking social media or listening to music, as the following quotation illustrates:

"That I do take the time to sit down and shut out other factors, meaning not necessarily having the phone next to me, going 'oh I am eating right now, why don’t I figure out at the same time when I have to leave tomorrow'. Things like that, to combine the eating with some other activity, because for that, I invest too much work in the food." KG3STU2

Some interviewees also spoke about an accompanying growth in reflection regarding the production process (including their own efforts in preparation) or the origin of the food they consume. These reflections seem to help curb impulsivity and allow for de-automatized responses, as well as helping to not use food as a coping mechanism. Moreover, they pave the way for more sustainable food consumption, as the following example details:

"I do not want to think so much when eating. […] But I noticed now, I do consider - alongside my desire - a little bit more; Do I really need this right now? […] The appetite quasi automatically decreases then. [...] When I crave sausages for example and then I look: What ingredients do they have? I think about it for some moments and it is more likely that I don’t eat it then, instead of following my first impulsive appetite." KG2STU9

However, these results were not explicitly linked to a perceived increase in ethical qualities, such as compassion, which were clearly present in the first effect category, general mindfulness.

These results were confirmed in the quantitative study, even though some effects found, on impulsivity, were not measured quantitatively (see measures section). As with general mindfulness, a 2x2 ANOVA with *experimental group* (IG-CG) and *measurement point in time* (pre-post) as factors for mindful eating were run. The ANOVA revealed a significant interaction effect $F(1,62) = 9.34$, $p = .001$,

η_p^2 = .131), a significant main effect for *measurement point in time* F (1,62) = 9.16, p= .003, η_p^2 = . 129) and no main effect for *experimental group* F (1,62) < 1). Post-hoc t-tests indicated more mindful eating habits only after participation in the MBI, see Figure 3 (IG: t (27) = 3.87, p < .001; d_{KORR} = .71, see Figure 2, CG: t (35) = -.03, p = .980).

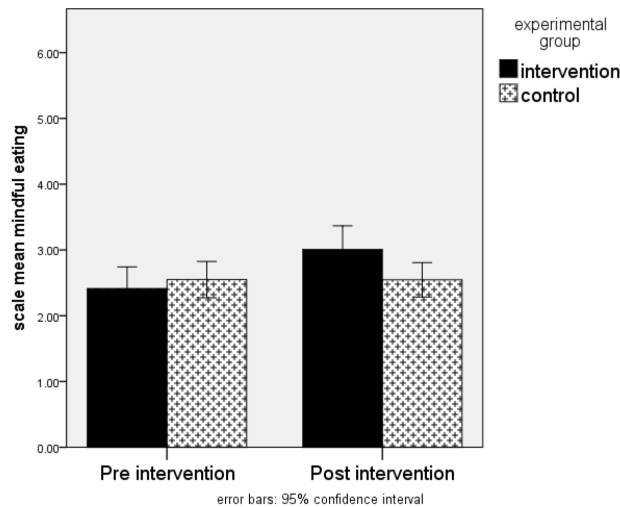

Figure 3: Effects of the MBI on mindful eating.

6.3. Sustainable food consumption: effects on pre-consumption phases

Participants exhibited a multitude of effects on the pre-behavioral phases of consumption, behavior, attitude and intention, in the qualitative study while no explicit mention was made concerning a change in values. The aforementioned growth in awareness about the production of food products was complemented in this effect category by a simultaneous rise in appreciation for the products and their availability. In some cases, this led to a change in consumption attitudes e.g.:

„When I thought about it [the food product] or thought about where it came from and what it's made of, it seemed to be less important what I was choosing. Because then I saw value in each product, even in something as "boring" as a cheese sandwich or something. That's why my choice got more equanimous. Just a little more relaxed." IG2STU8

Alongside this change in attitude, the intention to consume more sustainably arose or was strengthened:

"With mindful eating, I experience the taste of every single bite with more awareness and greater appreciation, because I reflect on the origin of the products. When I then shop mindfully, I pay more heed to sustainable, organic, fair trade products." IG1STU10

"I am definitely open, more open to the topic and realized that it is good and right and spreads to many other areas […]. Be it being mindful with what I eat, what I buy or don't buy or how I move or how I leave my environment [..]." IG3STU4

"Buying organic stuff was something I wanted to do before as well, this kind of reflecting, concerning myself, how meat is produced and milk and how the animals are living and one thinks: No, that cannot be supported, even if it's more expensive […] That was there before, but got reinforced. Through the training, yes, it got strengthened." IG3STU12

Especially the last quotation also displays an increase in compassion oriented towards others. However, the explicit effects on pro-sociality in regard to nutritional behavior remain very scarce.
The last positive effect to be described is the decrease in cravings for meat in participants who already had the intention to eat less meat for sustainability reasons before the training (e.g. animal welfare, CO2-footprint of meat):

„Because especially in the beginning I noticed that I eat with more awareness. […]. That my need for meat somehow actually decreased more." KG3STU9.

„My boyfriend had a pizza with ham or something. I realized that I felt disgust. I had that numerous times, this feeling of aversion towards meat. […]" IGSTUX

In one case, the effect of increased awareness about one´s own behavior and the accepting and neutralizing quality of mindfulness led to a decrease in bad consciousness about consuming *unsustainably*, creating a potential rebound effect:

"Because I tend to have a bad consciousness when I become aware of the fact that I can't fulfill my own [sustainability] criteria at the moment. The training […] helps me to accept this fact better and to say: ok, it is what it is, maybe because I don't have enough money right now to buy organic [food] only." IG1STU2

As the focus of the larger, quantitative BiNKA study was on the closure of the attitude– behavior gap, behavioral intentions were not measured in the quantitative study. For attitudes, a 2x2 ANOVA with *experimental group* (IG-CG) and *measurement point in time* (pre-post) as factors for the A-$SCB_{NUTRITION}$ measure revealed no significant effects whatsoever, including the interaction between group and measurement point in time ($F(1,62) < 1$). This means there were no changes as a consequence of the MBI in the already strongly positive attitudes (mean = 4.9 out of 6 point scale) towards sustainable food consumption (see Figure 4).

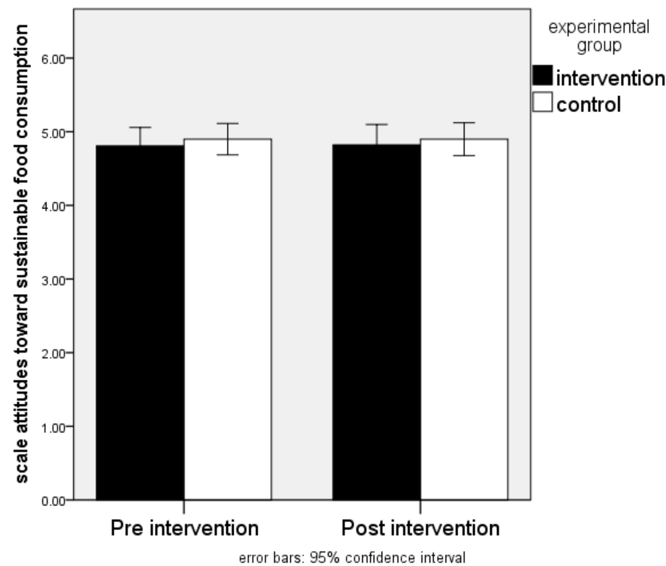

Figure 4: Effects of the MBI on attitudes towards sustainable food consumption.

6.4. Sustainable food consumption: effects on behavior

Those changes in intentions and attitudes experienced by most of the participants during and after the training did not, however, lead to a similar account of changes in actual consumption *behavior.* Only two specific effects in a minority of interviewees were found in the data concerning changes in actual food consumption behavior. One participant reported increased consumption of organic products after overcoming his previous preconceptions about the difference to conventional produce:

"I didn´t think much of organic products beforehand [...] I am a vegan, but hmm, I thought it was a rip-off, because it is always much more expensive and basically, it's the same ingredients etc." "But, hmm, lately, I have been thinking, ok, I will spend the 30 cents extra and buy the organic product instead." KG3STU3

The second effect – decreased meat consumption – is explained by two participants as being due to their heightened bodily awareness and a resulting curbed appetite for meat. This stands in contrast to their previous attempts to avoid meat consumption through discipline or other, cognitively-based strategies alone.

"With food, well (pffffff), my meat consumption, I believe, went down some more, since the beginning of the training". INTERVIEWER: "And you believe that's due to the training?" "Hm, yes, I believe that […]." KG3STU9

„Its more of a mind thing, that I actually do like to eat meat, that I think it's tasty, but I am often forbidding myself to eat it. Especially non-sustainably sourced meat. And in the [pizza with meat] situation, I realized, I don't WANT that. I had this feeling of disgust." IGSTUX

These single effects reported by three participants could not be corroborated for the whole sample in the quantitative results. The 2x2 ANOVA with *experimental group* (IG-CG) and *measurement point in time* (pre-post) as factors for the $SCB_{NUTRITION}$ measure revealed no significant effects, including the interaction ($F(1,62) < 1$). Figure 5 illustrates that there were no changes in sustainable food consumption as a consequence of the MBI.

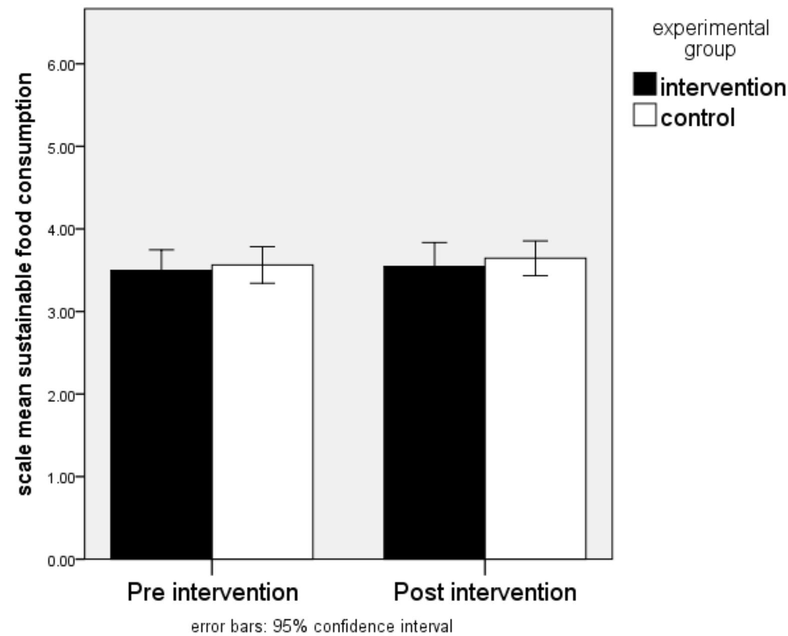

Figure 5: Effects of the MBI on sustainable food consumption.

6.5. Summarizing overview of effects

In summary, the study revealed a multitude of effects. As can be seen in Table 2, for category one both approaches revealed the same results, namely a strong effect of the MBI on mindful eating behavior in all participants. For the second effect category, the quantitative study only tested effects on attitudes and did not find any. However, the qualitative study inductively revealed various themes in the data and shows a more differentiated picture of attitudes and stronger, more behavioral oriented intentions. Results differ considerably in the third category, from solid effects found in the interviews to no effects for the survey data. Effects on actual consumption in terms of more sustainable behaviors were found to be sparse. Three of the interviewees reported changes in the qualitative study. However, the effect was not matched by the quantitative results.

7. Discussion

“Your intentions set the stage for what is possible. They remind you from moment to moment of why you are practicing in the first place” (Kabat-Zinn, 1991, p. 32).

This study set out to empirically explore conjoint effects of a mindfulness training on mindful and sustainable nutritional behavior. The presented mixed methods analysis revealed strong positive effects for mindful eating (research question 1), mixed effects for pre-behavioral stages of sustainable consumption (research question 2) and only sparse evidence for changes in actual sustainable consumption behaviors (research question 3). While quantitatively the effects on the different outcomes strongly dissociate, the qualitative interviews show small, but solid evidence that mindful eating practice can in fact help pave the way to more sustainable food consumption.

In what follows, an interpretation of our results is provided according to the three effect categories of (1) mindful eating, (2) sustainability-related pre-consumption phases and (3) sustainability-related consumption behavior.

1. Concerning the first category, both qualitative and quantitative results are in line with previous studies that showed how mindfulness practice supports conscious choices and counteracts impulsivity regarding food consumption. The overall results are also in line concerning the use of food as a coping mechanism. Especially the mindfulness facets of decentering and acceptance (of the current experience) showed strong increases, as has been shown by author studies (e.g. Keesman et al., 2017). Those findings reinforce the idea concerning the strong potential of mindfulness practice to cultivate more healthy eating habits, (as taking more time to eat and focusing exclusively on food intake), even in this healthy cohort that does not suffer from the psychological strain to change eating behavior for health reasons. Furthermore, mindful eating entailed an increased awareness of the production process and the origins of food as well as personal attitudes, intentions and eating habits. Such problem awareness and reflexivity are deemed to be preconditions for making sustainable consumption choices (Klöckner & Matthies, 2004), even though they are not directly related to actual consumer behavior. However, the facet of outer awareness did not increase, which should be taken into consideration for future designs, as especially this facet may be necessary to engage people in sustainable nutritional behavior beyond their own plates. Finally, the training may also stimulate the development of general ethical qualities considered important for acting sustainably, such as empathy and compassion. In conclusion, the intervention both promoted healthier food choices (a self-centered effect) through increased mindfulness while extending participants' awareness for other-oriented sustainability aspects and equipping them with the emotional competencies to act accordingly.
2. Regarding the effects on *sustainable pre-consumption phases regarding food*, qualitative interviews revealed strong effects on attitudes and intentions. Most of the participants spoke about how their pre-existing attitudes to consume sustainable foods were either strengthened through the MBI or the general rise in awareness they experienced led them to expand their sustainability attitudes towards food as well. It seems as if even though the attitude was present cognitively among participants prior to the training, the MBI gave it a different quality or reinforcement through experience, disabling their auto-pilot. The highly positive pre-intervention attitudes evidenced in the questionnaire study support this interpretation of qualitative change instead of a quantitative rise. The interviews also revealed a rise in

awareness of previously unconscious eating patterns, supporting Rosenberg's (2004) hypothesis that increased mindfulness goes alongside more deliberate and potentially sustainable consumption choices. Such attitude affirmation can also be construed in the sense of interconnectedness, as suggested by Thích-Nhất-Hạnh & Cheung (2012). Participants realize how their food consumption is inextricably interrelated and therefore effects the economical, ecological and social environment in which they are embedded (see for example p. 14, quote IG2STU8).

3. When regarding changes in actual consumption behavior, three out of the 11 interview participants reported effects in the qualitative study. This finding is paralleled by an absence of effects in the quantitative results. The few effects reported in the interviews, namely an increased consumption of organic food and a decrease in meat eating, were all based on *pre-existing* intentions to change behavior to more sustainable food choices. In the case of growth in organic food consumption, the participant reports that his intention to consume more sustainably had been dormant for a couple of years and was reactivated through the MBI. The two participants who state a decrease in meat consumption track these changes directly to their development of mindfulness, namely their heightened sense of awareness and perception of inner cues, instead of being guided by impulses that go against their intentions to reduce meat consumption. The rise in mindfulness and accompanying effects consequently seemed to support individuals in acting on their intentions deliberately, without exerting disciplinary effort.

Despite the decreasing effects from mindful eating, to pre-behavioral, to actual food consumption behavior, they turn out to be noteworthy when considering that the BiNKA training was not explicitly tailored to food consumption. As mentioned before, the intervention was not advertised as a training to support sustainable consumption behaviors nor health behaviors, but as a stress-reduction program. The findings suggest that directedness and intentions play a determining role with regards to the actual effects of an MBI. Participants related to their *pre-existing* attitudes on sustainable consumption when they spoke about their becoming more pronounced or expanding to different fields. As Kabat-Zinn (1991) highlights in the introductory quote, Shapiro (2006; 1992) also elaborates on the important role intentions play concerning the effectiveness of mindfulness training. He points out that the intention of meditators influences the outcomes of their practice. If one practices mindfulness to reduce stress, one will more likely reduce stress than change (food) consumption behavior – and vice versa. The current study's aim was not revealed to the participants in order to avoid self-fulfilling response bias. Each participant brought their own individual intention to his or her practice, instead of there being one common "vision" necessary to unfold the full potential outcome of the practice (Kabat-Zinn, 1991, c1990). Individual intentions were collected in the data from the interviewees. They were mainly based on self-focused interests, such as stress reduction, connecting to oneself or plain curiosity about mindfulness training. They did not entail a specific wish to increase sustainable consumption through the practice, which was most likely also the case in the larger questionnaire study sample. Nevertheless, the training affected people's eating behaviors, strengthened intentions for more sustainable nutritional behaviors and occasionally led to more sustainable food choices. Against the backdrop of the deep habitualization of eating (Köster, 2009), the various structural, social and

emotional difficulties in changing one’s eating patterns (Frank, 2017) and the short amount of time people invested in the training, these are noticeable findings.

Some of the differences between qualitative and quantitative findings can be explained. First, measuring changes in attitudes towards sustainable food consumption behavior pointed to a ceiling effect. This means participants already exhibited strong positive attitudes before the beginning of the intervention and it was thus unlikely to see further increases. Second, qualitatively observed effects on the behavioral level represent single case situations that have not yet turned into new eating patterns. For this reason, general effects might not have shown up in the survey data, even though they clearly represent a promising initial step toward more sustainable food consumption behavior. Third, participants reported that the training helped them to shed light on previously unconscious aspects of their food consumption. This increase in awareness may have caused a more accurate – and slightly more negative – estimation of their eating behaviors, instead of the more positively biased responses prior to the training. In fact, such biases are particularly likely regarding potentially unethical consumption (Gregory-Smith; Smith & Winklhofer, 2013). Moreover, it is well documented within the quantitative mindfulness research that increased awareness can lead to a more accurate self-estimation (compare for example Grossman, 2008), conferring further plausibility to this explanation.

Notwithstanding this rather positive perspective on the study’s results, the results also show that promoting sustainable nutritional behavior through mindfulness training is by no means an automatic success. Even though the potential mechanisms identified in the literature were partly found in the empirical data as well, especially with regards to decreased automaticity and awareness of ethical aspects, both study sources reveal a declining strength of effects, indicating strongest and most prevalent changes in mindful eating, while less participants reported effects on sustainability-related attitudes or intentions. Also, changes in actual sustainable or unsustainable eating behavior were individual, isolated effects and undetectable in an overall, quantitative measure.

For target groups that are looking for ways to put their other-oriented intentions into practice, or as part of sustainable consumption education programs, however, mindfulness training seems to be an auspicious catalyzer.

7.1. Limitations

It’s important to explicate several limitations for the understanding of the results. For one thing, the current study was part of the larger BiNKA-project which was intended to exploratively research the potential of mindfulness for education in sustainable consumption. It was thus not specifically tailored to explore effects on nutritional behavior. For both the quantitative and qualitative studies, a more comprehensive and nuanced set of measurements investigating mindful and sustainable food consumption is recommended for future research into this specific field. For example, the short version of the mindful eating scale and the newly constructed scale to assess attitudes towards sustainable nutrition showed a rather low Cronbach´s Alpha (α = .62 / .65) pointing towards the multifaceted nature of both constructs which are not sufficiently captured in the short scales applied

here. Moreover, a more differentiated model and consequently more detailed analysis of which specific practice evokes which corresponding effect in participants will be highly valuable for more nuanced research in the future.

The quantitative measurement of mindful eating suffers from the same limitations as measuring general mindfulness, so additional rigorous research is needed to improve psychometric properties and construct validity to create valid and reliable instruments in this area. Furthermore, mixed method approaches examining changes in observable (eating) behavior through mindfulness practice, e.g. by observations or assessment of family and partners (Van Dam et al., 2018) as well as experience sampling, are highly recommended for most holistic designs. Another relevant limitation, as discussed before, is the fact that participants were not fully aware of the aim of the study, which might have prevented intentions from unfolding their full potential. However, some participants showing effects reported that they would not have taken part in the MBI, had they known its "true" aim. The attendance rate of participants that were interviewed was slightly higher than average, resulting in a possibly positive motivation bias in the qualitative sample. To extend future research beyond student populations is also recommended, to allow for greater generalizability of findings. Finally, the researchers analyzing the qualitative data are all practitioners of mindfulness themselves. Although considered an essential precondition to researching mindfulness (Grossman, 2008), there is the potential for a positive bias in data interpretation.

8. Conclusion

The current study set out to explore the effects of an adapted MBI on both mindful and sustainable nutritional behavior and pre-behavioral stages of consumption with a mixed method-controlled intervention study. In conclusion, it can be said that notwithstanding the rather positive perspective on the study's results, it is clear that promoting sustainable nutritional behavior through mindfulness training is by no means an automatic success. Both qualitative and quantitative data sources reveal a declining strength of effects, indicating strongest and most prevalent changes in mindful eating, while less participants reported effects on sustainability-related attitudes or intentions. Changes in actual sustainable or unsustainable eating behavior were individual, isolated effects and undetectable in the overall, quantitative measure. It is also important to point out again that participants relate to their *pre-existing* attitudes on sustainable consumption when they speak about their becoming more pronounced or expanding to different fields. In no case did participants reported a complete change of attitudes. Given the alleged importance of intentions concerning the outcome of mindfulness practice, it is questionable whether the practice can really serve to promote sustainable consumption beyond self-focused health aspects on a large scale. Future research is required to further and differentiate understanding of those first findings. For target groups that are looking for ways to put their other-oriented intentions into practice, or as part of sustainable consumption education, however, mindfulness training seems to be an auspicious catalyzer and should be considered a useful and supportive addition to existing and future programs.

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9.6. Transforming consumer behavior: Introducing self-inquiry-based and self-experience-based learning for building personal competencies for sustainable consumption

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Abstract

Despite growing educational efforts in various areas of society and albeit expanding knowledge on the background and consequences of consumption, little has changed about individual consumer behavior and its detrimental impact. Against this backdrop, some scholars called for a stronger focus on personal competencies, especially affective–motivational ones to foster more sustainable consumption. Such competencies, however, are rarely addressed within the context of education for sustainable consumption. Responding to this gap, we suggest two new learning formats that allow students to systematically acquire affective–motivational competencies: self-inquiry-based learning (SIBL) and self-experience-based learning (SEBL). We developed these approaches at Leuphana University Lüneburg, Germany, since 2016, and applied them within the framework of two seminars called Personal Approaches to Sustainable Consumption. Conducting scholarship of teaching and learning, we investigated the potential of SIBL and SEBL for cultivating personal competencies for sustainable development in general and sustainable consumption in particular. Our results indicate that SIBL and SEBL are promising approaches for this purpose.

Keywords: personal competencies; sustainable consumption; education for sustainable development; scholarship of teaching and learning; self-inquiry-based learning; self-experience-based learning

1. Introduction

Successfully addressing unsustainable individual consumer behavior remains one of the key challenges for sustainable development (SD) [1]. Various educational efforts have done little to change individual consumer patterns and their detrimental impact. In response, researchers called for a transformation of education for sustainable consumption (ESC) by shifting the focus of learning from a knowledge-based to a primarily competence-based approach. Such an approach would allow learners to acquire skills necessary for pursuing and professionally facilitating more sustainable lifestyles [2]. Given the complex interplay of cognitive, emotional, and motivational dimensions of consumer behavior, such an approach includes, but is not limited to, developing purely academic and disciplinary expertise. Instead, "it seeks to enhance individuals' capacity to engage with more fundamental questions that also apply to other domains of life" [2] (p. 198). In this regard, both

researchers working on sustainable consumption [3,4] and ESC scholars [5,6] point to the importance of personal competencies, especially affective–motivational ones, for achieving this goal.

Despite these recommendations, common approaches within ESC still seem to focus on, or at least prioritize, the discursive–intellectual dimension of consumption-related competencies. Fischer and Barth [2] "see a great need to overcome the narrow focus on the provision of information for the sake of triggering behavioral change" (p. 199). Even though a tendency toward competence development can be observed within ESC programs in higher education, personal competencies receive little attention (compare Reference [7]). Some attempts were made to stimulate such competencies in the larger field of education for sustainable development (ESD) [8,9], for example, by introducing mindfulness practices [10] or social–emotional learning approaches [11]. However, such attempts remain scarce and fragmented. A pedagogy aiming for a systematic cultivation of personal competencies for ESD in general and ESC in particular is yet to be developed.

Addressing this gap, we suggest two new learning approaches for ESC that allow students to systematically acquire affective–motivational competencies: self-inquiry-based learning (SIBL) and self-experience-based learning (SEBL). They represent a holistic, experiential, action-oriented, and transformational pedagogy supporting self-directed and problem-oriented learning. We developed these approaches at Leuphana University Lüneburg, Germany, since 2016, and applied them within the framework of two seminars called Personal Approaches to Sustainable Consumption. Conducting scholarship of teaching and learning [12], we investigated the potential of SIBL and SEBL for cultivating personal competencies for sustainable development (SD) in general and sustainable consumption (SC) in particular.

This study is structured as follows: in Section 2, we discuss the relevance of affective–motivational competencies for sustainable consumption. While ESD/ESC scholars called for their cultivation in educational settings, the practical implementations are few and far between. In Section 3 and Section 4, we introduce SIBL and SEBL as promising pedagogies that help students develop personal competencies. Section 5 constitutes the empirical part of our article. We describe the seminars based on the principles of SIBL and SEBL, outline our research design and methods used to investigate them, and share our results. In Section 6, we discuss our experience with regard to the potential of our approach for stimulating personal competencies. Despite certain limitations that are addressed, our findings indicate that SIBL and SEBL are promising approaches for cultivating personal competencies for SD in general and sustainable consumption (SC) in particular.

2. Theoretical Background

Institutions of higher education epitomize pivotal actors for sustainable development [13]. They educate future change agents by "developing knowledge, skills, values, and behaviors needed for sustainable development" [14] among students. To describe the intended learning outcome of higher (H)ESD, the concept of competence received increasing popularity among scholars during the last decade [15,16]. According to Weinert [17], competencies can be understood as "a roughly specialized

system of abilities, proficiencies, or skills that are necessary or sufficient to reach a specific goal" (p. 45). This specialized system allows individuals to deal with complex demands in specific real-life situations. Dealing with these demands requires the interplay of internal structures such as cognitive, emotional, and motivational dispositions [18].

These dispositions also come into play in the case of individual consumer behavior. This behavior is inextricably woven into the living environment in everyday life. Contemporary consumption is considered as a central driver of the current unsustainable development, particularly in western societies [1]. Addressing this problem, ESC emerged as a subfield of ESD, focusing on sustainable lifestyle changes and promoting competencies that allow individuals to act more sustainable as consumers and citizens [19]. For this reason, it also received increasing attention within higher education. Under the term higher education for sustainable consumption (HESC), scholars worldwide worked on learning formats to implement ESC in institutions of higher education. The overall goal of these learning formats is to facilitate the acquisition of competencies allowing students to face and overcome (individual and societal) consumption-related challenges in a responsible, self-determined, and reflexive manner [2].

Acquiring theoretical knowledge still seems to be the key practice within HESC for achieving this end [2], albeit evidence emphasizing that knowledge is not sufficient, and not even of primary relevance for promoting SC. This becomes particularly salient when looking at the intention–behavior gap, which is when people do not act in accordance with their intentions [20,21]. This gap is widespread in western industrialized societies: A representative survey [22] demonstrated, for example, that most Germans consider environmental protection important and express their willingness to restrict their individual consumer behavior for this purpose. Yet, despite their knowledge of the negative consequences of their consumer behavior, just few people act accordingly [23]. Findings, such as this one, suggest that transmitting knowledge might not be an appropriate leverage point for fostering SC.

More recent studies even provide evidence that a purely discursive–intellectual approach to morally laden topics, such as consumption, can even have adverse effects because of affective–motivational factors [24,25,26]. These factors are related to SC in two ways. Firstly, they play an important role when evaluating consumer activities and, consequently, motivating oneself to consume in a certain way. Emotions are associated consumer-related actions prior, during, and after consumption [27]. If, on the one hand, a consumer activity is accompanied by positive emotions such as joy, anticipating this emotion can be a relevant driver for this activity. On the other hand, if it is connected to negative emotions such as fear or shame, this might prevent individuals from engaging in that activity [28]. Secondly, being confronted with the pressing problems of contemporary society, for example, inequality, poverty, climate change, or species extinction, and feeling a sense of individual responsibility for these problems can be overwhelming or at least emotionally stressful [29,30]. This emotional burden can activate coping mechanisms aimed at dissolving the unpleasant emotional state by repressing, neutralizing, or rationalizing the impact of one's actions [30,31,32], thereby justifying and stabilizing unsustainable routines [26]. People are not necessarily aware of these processes and the role they play regarding their consumer choices, as they often occur at an unconscious level [33]. To

enable individuals to pursue problem-oriented coping strategies, it is necessary to help them become aware, and to find a way to constructively deal with the source of their emotional discomfort [27].

Given the importance of the affective–motivational dimension, several scholars called out for a more holistic approach within (H)ESD/HESC. Wiek et al. [16] claimed that educational approaches would strongly benefit from learning settings that included cognitive, but also affective and psychomotoric dimensions. Hamann et al. [27] also emphasized the importance of targeting the affective–motivational dimension within HESC; learning scenarios in which these dimensions of individual consumption are addressed can help students transform emotional coping mechanisms into problem-oriented strategies and enable them to endure unpleasant emotional states, thereby strengthening emotional resilience. Moreover, Hunecke [34] underlined that "individual change processes geared toward sustainable lifestyles must be motivated by increasing subjective well-being" (p. 33). For this purpose, he suggests the cultivation of psychological resources for SD, which help them deal with the emotional challenges described above. These resources comprise the capacity for pleasure, self-acceptance, self-efficacy, mindfulness, the ability to construct meaning with regard to one's life, and solidarity. Frank et al. [35] highlighted the importance of cultivating self-reflexivity, that is, the ability to distance oneself from, observe, and critically engage with inner states and perceptions. Some of the previous points can also be found in Lozano and colleagues' [36] synthesis of competencies for SD. In addition, the authors suggested self-motivation, and the willingness and ability to take action as relevant affective–motivational competencies. Even the recent ESD United Nations Educational, Scientific, and Cultural Organization (UNESCO) report [6] stresses that "the ability to […] deal with one's feelings and desires" (p. 10) as part of self-awareness competence is a prerequisite for pursuing sustainable lifestyles, as is the case for "self-reflection skills, values, attitudes, and motivations that enable learners to develop themselves" (p. 11). It is against this backdrop that first Murray [8] and later Brundiers and Wiek [9] held that the stimulation of SD competencies strongly "overlaps with personal development and growth" [9] (p. 2). This literature shows the need to target the affective–motivational dimension when educating change agents for SD.

Despite the emerging consensus of the relevance of competencies such as the ability to deal with emotional challenges, current approaches within HESC are still mostly limited to or at least prioritize the discursive–intellectual dimension of sustainability-related competencies. As a consequence, students are inadequately prepared to deal with the multi-faceted challenges they may encounter in their pursuit of a sustainable lifestyle. In other words, students are unable to become change agents for SD within the domain of their consumer behaviors.

How can this shortcoming be addressed? We suggest that HESD in general and HESC in particular should focus more strongly on the development of what we subsequently refer to as personal competencies. Based on Weinert's definition of the term competence [17], we define personal competencies as abilities, proficiencies, or skills related to inner states and processes that are necessary or sufficient to reach a specific goal. These include self-reflexivity/self-awareness (including awareness of one's values and affective–motivational processes), emotional resilience, defined as "capacity to maintain competent functioning in the face of major life 'stressors'" [37], or the willingness and ability to motivate oneself for action. Likewise, the knowledge of and the ability to

mobilize one's psychological resources is also a personal competency. It must be underlined that the development of personal competencies is not an outcome-oriented, instrumental enterprise to produce more sustainable consumers. The primary rationale behind building such competencies is the idea that personal competencies empower students to take better care of themselves and increase their overall subjective well-being in the face of the pressing sustainability-related challenges, which in turn enables them to address these issues in a problem-oriented manner. We argue that doing so, although currently strongly neglected within HESD/HESC, is a prerequisite for building future change agents [9]. Educational programs should aim to explicitly build such competencies.

In what follows, we introduce two new concepts specifically tailored to this end: self-inquiry-based learning (SIBL) and self-experience-based learning (SEBL).

3. Self-Inquiry-Based Learning and Self-Experienced-Based Learning

Having identified personal competencies as crucial elements for promoting SC, the question emerges as to which kind of pedagogies are most appropriate for bringing about these competencies. There seems to be general agreement that still widespread instructional approaches are not sufficient on their own to help build sustainability-related competencies [15,38]. Instead, constructivist learning approaches are suggested, in which students turn from passive knowledge receivers to active knowledge generators [39]. Two key educational approaches for that transition are inquiry-based learning (IBL) and experience-based learning (EBL) (or experiential learning).

IBL, in its widest sense, can be seen as "an umbrella term, covering a range of approaches to learning that are driven by a process of inquiry" [40] (p. 17). Pedagogies like problem-based learning, project-based learning, or case-based learning can be subsumed under this umbrella term [41]. IBL starts by posing questions, problems, or scenarios, rather than simply presenting established facts or portraying a smooth path to knowledge. Inquirers identify and research issues and questions in order to develop their knowledge or solutions to specific challenges actively. For this purpose, they also need to engage independently in the application of methods deemed appropriate for the topic of inquiry. As Huber [42] holds, IBL's main characteristic is that "learners (co-)shape, experience, and reflect the process of a research project during all important states" (p. 11). Current research suggests that IBL is not only an adequate approach for developing a profound professional and methodical competence in a particular discipline, but that it also shows promise for stimulating competencies that go beyond disciplinary demands [43]. For this reason, scholars also attribute the potential to help students develop competencies for SD to IBL [39,44]. While current empirical evidence remains ambiguous with regard to actual competence acquisition through IBL [45], Gess et al. [43] suggested that IBL can help cultivate an inquisitive stance toward problems in learners. Such a stance includes the students' ability to take up lines of inquiry independently and engage critically with methods necessary for undertaking this inquiry.

EBL is defined by David Kolb [46] as "the process whereby knowledge is created through the transformation of experience" (p. 41). This process happens in a four-step cycle: experiencing,

reflecting, thinking, and acting. The cycle begins with a concrete experience (1), followed by an opportunity to reflect on that experience (2). Learners then conceptualize and propose theories based on what they experience and observe (3). These concepts and conclusions, drawn primarily from personal experience, in turn provide the basis for future active experimentation (4). The process is cyclic because learners have new experiences based on previous experimentation [47]. According to Kolb [46], experiential learning is characterized by (i) the involvement of the whole person, including their intellectual, sensory, and emotional faculties; (ii) learners' active use of their previous life and experiences as learners; and (iii) reflection on earlier experiences aimed at evolving thinking and creating a deeper understanding of relevant experiences. Given this background, EBL seems to be a promising educational strategy for developing a host of competencies, particularly those important for SD [15,38]. This perspective is also shared by UNESCO [6], which declared EBL a "key approach" for ESD. Indeed, empirical evidence corroborates EBL's potential for stimulating the acquisition of certain competencies, such as methodological, [48], communication [49], or problem-solving skills [50].

The problem behind EBL's rationale to engage with subjective experience reflectively is that, contrary to intuition, we lack automatic access to our subjective experience. In fact, most of what we actually experience takes place on a subconscious level [33,51]. Consciousness scholars like Bitbol [52], Petitmengin [52,53], or Vermersch [51] demonstrated that a fair amount of training and explicit directedness toward subjective experience is required in order to make various aspects of subjective experience conscious. Without such training, individuals tend to reproduce representations of, and postulate ad hoc explanations for, subjective experience instead of accessing the actual experience itself [51,52,53]. As a consequence, the importance of reflecting on experience, as well as the integration of the "whole person" advanced by EBL advocates, runs the risk of being overlooked.

In order to unleash IBL's and EBL's potential for cultivating personal competencies, we suggest SIBL and SEBL as adaptations of IBL and EBL pedagogies capable of circumventing the dangers just listed. SIBL can be defined as an IBL approach in which the object of inquiry is the individual students themselves. The overall goal of SIBL is to develop an inquisitive stance toward and inter-subjective understanding of personal phenomena based on a systematic and controlled research procedure. Similarly, SEBL is an EBL approach in which students gain access to and develop a deeper comprehension of their subjective experience.

SIBL and SEBL are very closely related concepts, differing only with regard to the primary educational emphasis. While SIBL is also rooted in the subjective experience of learners, it is focused on methods that allow for controlled self-observation (data collection) and a valid analysis of the latter for making inter-subjective sense of personal experience. SEBL, in contrast, primarily aims at broadening and deepening subjective experience, explicitly incorporating its bodily, affective-emotional, and sensory dimensions. In practice, both approaches aim to create learning spaces enabling students to cultivate self-knowledge and build personal competencies by applying (scientific) methods to subjective experience.

4. Learning Activities of SIBL and SEBL

To achieve the educational goals behind SIBL and SEBL, it is necessary to apply appropriate learning activities that help students (1) gain access to and systematically observe their subjective experience, (2) document the latter, and finally (3) generate an intersubjective understanding of the data.

The foundation of SIBL and SEBL is a systematic training to observe subjective experience. According to Petitmengin [53], preparing individuals for such introspective activities presupposes two steps. Firstly, it necessitates a shift in orientation from the conceptual "what" to the phenomenal "how" of subjective experience. In other words, students are asked to engage with the observation of inner states and processes without interpreting or discussing them, or making logical inferences on their basis. This constitutes a fundamental shift in perception within the university context, where the focus is usually on learning to argue, discuss, and dissect theoretical concepts and knowledge with the aim to overcome subjectivity. Secondly, it is important to systematically deepen and orient the reflection of subjective experience to all of its experiential dimensions (see Figure 1 [35]), as this reflection habitually remains shallow and tends to neglect the sensory, somatic and affective-motivational dimensions of an experience [53,54].

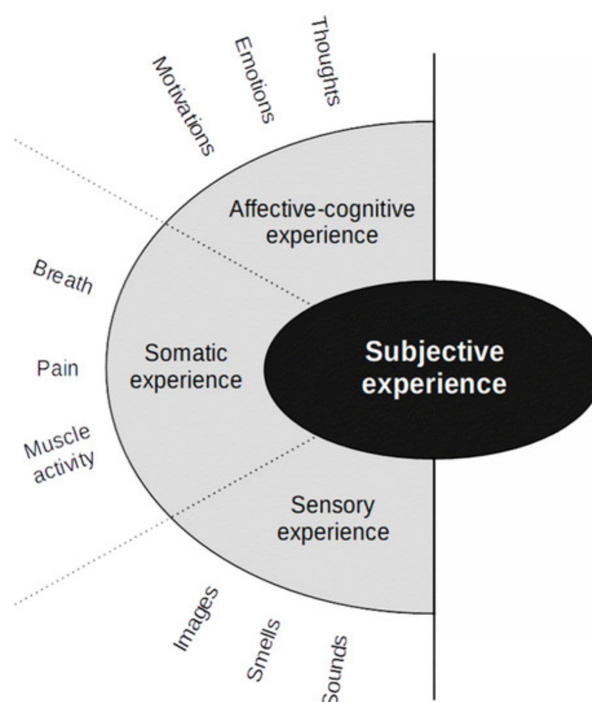

Figure 1. Dimensions of subjective experience.

Mindfulness practices are a well-established means to provide students access to their subjective experience [55]. These practices can have different foci, such as thought observation, mindful eating, breath observation or the body (e.g., in forms of a body scan, yoga, etc.). They all have in common that they aim to bringing "awareness to current experience—observing and attending to the changing field of thoughts, emotions, and sensations from moment to moment—by regulating the focus of

attention” [56] (p. 232). Different mindfulness practices can allow one to direct one’s attention to the different dimensions of subjective experience and to observe their one’s states and processes [57,58]. This core mechanism of mindfulness practice is also associated with a number of positive effects on individuals, such as improvements in affect regulation [59], the enhancement of emotional resilience [60], an increase in self-determination [61], or the cultivation of empathy. In this sense, mindfulness training is not only a way to develop awareness of inner states and processes, but at the same time provides individuals a tool to deal with the latter.

Two activities that likewise facilitate access to subjective experience are the micro-phenomenological interview [53,54] and dialogic introspection [62]. These two activities are meant to deepen and broaden subjective experience through group dialogue and directed questions by an interlocutor. In the latter case, interviewer and interviewee look at a particular event the interviewee (recently) experienced (for example, taking a shower). The interviewer then aims to reconnect the interviewee to the concrete experience, thereby focusing on specific and increasingly detailed aspects of this event (e.g., how the skin reacted to the first instant when touched by the water). Dialogic introspection starts with a group commonly sharing the same experience. Right after the event, group members are asked to do an individual introspection focusing on their own experience which they are asked to document. Two exchange rounds follow. In the first exchange round, each individual shares their experience in the group. In the second round, each member elaborates on those aspects they were reminded of while listening to the contributions of the others, thereby (retrospectively) directing the individual experience to dimensions previously not considered while potentially deepening one’s own subjective experience.

The second type of learning activity should allow learners to make this experience subject to inquiry. In order to make subjective experience accessible to intersubjective reflection, it must somehow be externalized. The second type of SIBL/SEBL learning activity, hence, aims to verbalize and document this experience. Reflexive diaries offer a suitable way to do so, allowing learners to reflect upon specific situations and verbalize the occurring sensations of a given moment. Such writing activities are also an essential part of the larger research programs of systematic self-observation [63] or autoethnography [64]. In both approaches, the researcher observes themself in social situations, thereby gathering information about their subjective experience in these situations. Familiarizing students with systematic self-observation and autoethnography are, hence, adequate ways to engage them in SEBL/SIBL learning activities. However, we highly recommend combining these activities with a systematic introspective training, such as mindfulness, as the way people speak of their experiences is not necessarily identical to the actual experience [65]. There is evidence that mindfulness training, by generally raising the awareness of one’s inner states and processes, also helps individuals verbalize subjective experience [66]. This is especially true for dyadic mindfulness practices, such as the “contemplative dyads” [67]. Alongside the micro-phenomenological interview and dialogic introspection, these practices directly lead to the verbalization of subjective experience, as they are characterized by a verbal exchange on introspective observation. These methods also have the advantage that trained interviewers can support learners in sharpening the verbalization of introspection [51,52,53,54], thus making them valuable learning activities for SEBL and SIBL.

The last type of SEBL and SIBL learning activity familiarizes students with methods that allow them to analyze (their) introspective self-reports. There is not one single analytical approach to make inter-subjective sense of such data. Instead, different methodical approaches can shed light on specific aspects of the subjective experience under investigation, while also coming along with specific blind spots. Frank et al. [68] compared three qualitative approaches for analyzing introspective self-reports, namely qualitative content analysis [69], interpretative–phenomenological analysis [70], and discourse analysis [65]. Content analysis represents a method that helps identify mutually shared patterns of subjective experience. At the same time, the method does not necessarily allow learners to further deepen the reflection of the experience under investigation, which the interpretative–phenomenological Analysis can provide. Discourse analysis, in contrast, provides a rather critical perspective on introspective reports as "communicative events that display an order and organization that embody the interpersonal and interactional orientation of language in use" [65] (p. 52).

In sum, learning through self-inquiry and self-experience requires the integration of three types of learning activities, namely (1) activities that provide students access to and train them to observe subjective experience, (2) methods for collecting introspective data, and (3) analytical tools allowing students to make intersubjective sense of this data. The provided list has no intention to be complete. It rather aims to illustrate how different learning activities can be used to help students engage with the principles of SIBL and SEBL, thereby allowing them to systematically acquire personal competencies.

5. SIBL and SEBL in Practice: The Seminar "Personal Approaches to Sustainable Consumption"

The following sections concern a seminar format based on the principles of SIBL and SIBL and developed within the context of HESC. We made use of this format in two seminars, which are described in detail in Section 5.1. In Section 5.2, we outline the research design of our empirical inquiry, intending to examine the format's potential for developing personal competencies for SC. The results are provided in Section 5.3.

5.1. Seminar Description

From October 2017 to March 2018 and from April 2018 to March 2019, we conducted two seminars at Leuphana University/Germany entitled "Personal Approaches to Sustainable Consumption". In these seminars, students developed and put into practice transformational projects aiming to make their personal consumer patterns more sustainable. Following the concept of SIBL and SEBL, students systematically observed and analyzed their inner states and processes occurring over the course of their transformation, drawing upon practices of self-observation and scientific methods in order to generate an intersubjective understanding of the process of transforming their consumer behavior. Moreover, seminar attendees were familiarized with a variety of techniques (drawn from coaching, psychotherapy, and other relevant fields) enabling them to deal with and overcome challenges by mobilizing personal resources to pursue their personal transformation projects.

The seminar content consisted of four elements: (1) theoretical knowledge concerning SD and SC, as well as their central concepts, (2) introspective training, (3) method(olog)ical knowledge related to the collection and analysis of introspective data, and (4) awareness for and cultivation of personal resources (see Table 1). Each seminar session followed a similar structure in which these elements were addressed, attending either to a particular theoretical or method(olog)ical issue. The variable content of the seminar was embedded in a fixed seminar framework in which every session began with a review of the immediately prior session. Following this review, students would then next reflect on the progress of their individual projects. While this practice offered students support in pursuing their transformational projects, it also prepared them for the analysis of their individual data at the end of the semester, offering them a forum for abstracting from their own experience and identifying intersubjective patterns at play in changing consumer behavior. This exchange was usually followed by a mindfulness exercise and then by dialogic introspection on the experience, providing an opportunity to deepen both theoretical understanding and relevance of the practice. The sessions normally ended with another short contemplative practice and an eye toward what would take place during the following session.

Table 1. Four content elements of the seminar.

Element	Content (Exemplificatory)
1. Introduction theoretical background on and central concepts of SC	• Sustainable development goals (SDGs, [71]) • The ecological footprint [72] • The concept of planetary boundaries [73] • Consumption-specific theoretical work [74] • Challenges, coping strategies, and supportive factors related to SC
2. Introspection and mindfulness training	• Sitting and walking meditation • Bodyscan • Mindful communication • Breath observation • Yoga
3. Method(olog)ical knowledge related to the collection and analysis of introspective data	• Microphenomenological interview technique • Dialogic introspection • Qualitative content analysis
4. Awareness and strengthening of personal resources	• Mindfulness practices • Motivational interviewing [75] • Practices from deep ecology [76] • Variety of team building exercises, including contemplative dyads or triads (respectively, two or three people sharing)

Following the concept of constructive alignment [77], the intended learning outcomes of the seminar can be defined as being directly in line with its content. This alignment was most clear in that the theoretical and methodical elements of the seminar aimed to increase students' knowledge in the

related fields and to enable them to work with introspective data in a systematic, scientifically controlled way. These objectives were also evaluated through the course examination, consisting of an individual oral exam and a written report created by groups of two or three. The oral exam gives students the opportunity to elaborate upon the relevance of their individual transformation projects with regard to current sustainability challenges. Students were also asked during these exams to describe the way they measured and documented progress within their projects and to deliberate upon challenges they faced. Within the written report, students then abstract from their subjective experience and systematically analyze diaries they kept while working on their projects. In these analyses, students identified overarching challenges and supporting factors with regard to the transformation of individual consumption based on the application of content analysis. Thus, the students can learn to abstract from their own individual habits to wider, intersubjective, and more general societal consumption patterns, as well as derive possible tools to drive personal and social transformation.

The overall objective of the course, however, was to build personal competencies for SC among participants. The self-experiential and self-inquiry-based approach of the seminar format intended to augment students' self-awareness in relation to consumption activities. A special focus was directed to the systematic observation of affective–motivational states and processes that might impact the progress of their transformation project. It is important to mention how the seminar avoided creating an atmosphere in which students felt "forced" to change their consumer behavior in spite of their intrinsic motivations. Instead, students were encouraged to observe their inner states and processes so thoroughly that they were able to make self-determined and responsible decisions based on an awareness of their own needs and personal boundaries. Students were also explicitly encouraged to challenge themselves in their projects to push through particular transformational challenges, thereby stimulating competencies such as affect regulation and resilience; at the same time, the seminar repeatedly emphasized the importance of self-care and pleasure by providing practices catering to them. Furthermore, different team-building exercises aimed to strengthen mutual social support among peers in the seminar.

Leuphana University provided a suitable environment for this kind of seminar format. This public university is located in Lüneburg, Lower Saxony, Germany. As of the winter semester in 2018–2019, it counts 9505 students and employs around 1150 people. It is made up of four faculties covering the fields of education, humanities and social sciences, business and economics, and sustainability. Being Europe's first and only university with a dedicated Faculty of Sustainability, educating future change agents for SD is a central goal of this institution. Its stated mission as a higher education institution emphasizes the importance of personal development alongside sustainability education and the capacity for responsible and ethical action beyond the boundaries of academic discourse for all its students. As the aims of the university's mission largely dovetail with the ideas behind our seminars, both the university and the Faculty of Sustainability provided an ideal space to implement and investigate our approach in these seminars.

As previously mentioned, we piloted two different versions of this seminar. The first seminar, offered during the winter semester of 2017–2018, brought together 30 first-year students from a variety of

fields of study (business, ecology, humanities, social science). Weekly seminar sessions took place throughout the winter semester and typically lasted for three hours. Based on our experience in this first trial run, we offered a year-long and more time-intensive (four hours per week) version of the seminar during the summer semester of 2018, this time enrolling fourth-semester undergraduate students majoring in environmental science. While all students from the first cohort completed the seminar, three students left the second run after the first semester.

5.2. Method

Because the described seminar format was the first of its kind, we wanted to explore its educational potential for stimulating personal competencies for SC. In detail, we focused on three questions as follows:

- Which insights did students gain concerning any (inner) difficulties hindering the development and implementation of their transformation projects? How did they deal with these difficulties? Additionally, which factors helped them realize their transformation projects?
- How did students experience (the different elements of) the seminar in general? More specifically, what did they learn beyond an enriched understanding of individual consumption, and which problems did they identify with the seminar format?
- How did the seminar effect students' consumer behavior?

Overall, data collection and analysis followed a five-step process (see Figure 2). As suggested by the concept of SEBL, student experience from individual transformation projects constitute the basis for our data (step 1). They reflected on their experiences by regularly writing research diaries (step 2). In line with SIBL, these diaries were then subject to a systematic inquiry based on qualitative content analysis in which students gathered in small groups and identified overarching patterns concerning challenges and supporting factors of transforming one's consumer behavior. The results were written down in research reports (step 3). It was not before step 4 that our work as researchers came into play. We conducted a content analysis [78] of the students' analyses, distilling and summarizing the patterns identified by students in step 3. In addition to these analyses, we also took seminar evaluations, as well as students' final reflections on the seminar experience, into account in order to address our research questions. For the first seminar cohort, a quantitative evaluation was performed, and reflections were part of the final examination at the end of the seminar. For the second cohort, we made use of Leuphana University's qualitative evaluation process called SHIFT, in which an external person moderates a discussion between students and teaching staff alongside predetermined questions concerning the seminar experience. In addition, we offered students a reflection session in which they discussed the most important lessons learned during, as well as their general experience with, the seminar. A student assistant attended this session and kept detailed records. All additional data gathered here were also subject to content analysis (see Table 2 for an overview of the data). In step 5, preliminary results were discussed with students in order to validate and refine our findings.

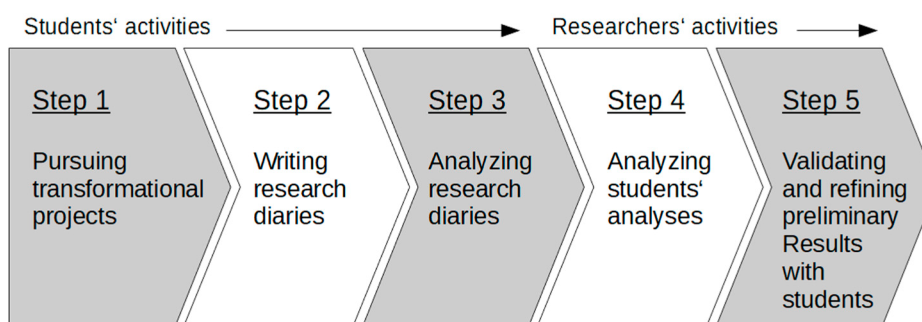

Figure 2: Five-step research design of scholarship of teaching and learning.

Table 2: Overview of the data material.

Type of Data Material	Seminar I	Seminar II
Research diaries	30	20
Research reports	5 (group size: 5–6 students)	6 (group size: 2–3 students)
Written seminar reflections	5 (included in the research reports)	15 (2 students were absent during the last session)
Evaluations	Standardized quantitative evaluation with open questions on learning effects and suggestions for improvement (13 students participated)	Qualitative evaluation (15 students participated)

Application of content analysis in step 4 followed a different procedure for the two seminars. Firstly, we undertook an inductive content analysis on the existing data material from the second seminar. While staying as close as possible to the experiences students described in their reports and their reflections, we coded the entire data material, looking for overarching categories of the phenomena described by the students, and related our codings accordingly. The resulting list of phenomena was then transformed into an analysis matrix that was applied by two student assistants in order to analyze data material from the first seminar deductively (although they had the opportunity to add new codes when new phenomena were mentioned). In both cases, incongruencies between coders were discussed until a consensus was reached (consensual coding [79]). Findings from both analyses were finally merged into an overall results table.

5.3. Results

5.3.1. Insights into Difficulties, Coping Strategies, and Supporting Factors

In a first step, we asked which insights students gained into (inner) difficulties hindering their personal transformation projects, how they dealt with these possible difficulties, and which factors fostered the overall development of their projects.

In attempting to change their consumer behavior, students faced a series of challenges complicating their transformation projects. Regarding external challenges, they mentioned (in declining frequency) their social environment (45/50 students) (which, for example, did not accept their new consumptive patterns and exerted a perceived pressure not to change their behavior), the fact that establishing new routines was time-consuming (36) and more expensive (24), and perceived scarcity of desired consumer goods (24) (e.g., plastic-free food). Fifteen seminar attendees also described how putting their projects into practice made them realize the complexity of evaluating the implications of their consumer actions, which was also perceived as a difficulty.

Within the seminar, students were asked to bring special attention to inner difficulties and observe their inner reactions to outer circumstances. We identified three types of inner difficulties, namely (i) challenging emotional reactions, (ii) hindering emotional dispositions, and (iii) motivational challenges in regard to transforming consumer behavior. All students faced challenging emotional reactions, the most prominent being negative feelings caused by a perceived restriction due to the project (42), negative feelings due to societal reactions (33) (e.g., demand of justification for the new behavior by peers), and negative feelings prompted by a non-commitment to the self-determined project (25) (for example, feelings of guilt). Furthermore, almost all seminar attendees (45) reported feelings of being overwhelmed, helplessness, and uncertainty when dealing with the consequences of their consumer behavior and trying to find ways to avoid the latter. These sensations were usually accompanied by conflicts of identity and reduced self-esteem (39) ("Despite knowing that I do not consume in accordance to my values, I do not pursue my self-determined project"). Challenging emotional dispositions describe the affective attitude students hold toward the project and its context. Students described three kinds of such dispositions, namely (a) a positive emotional relation to the old behavior (15) ("sharing the traditional family meal on Christmas"), (b) the emotional relation to the context of the project (12) ("university seminar"), and (c) a problematic relation to the field of action (9) ("pathological relation to food"). The third kind of inner difficulty involved motivational challenges. All students reported some degree of motivational challenge. The most frequently reported challenges were a lack of motivation, missing energy for following through on one's project in the face of aforementioned inner and outer difficulties (42), being confronted with opposing needs and interests (39), and being trapped in routines that are difficult to exit (33). Finally, a lack of knowledge (29) was found to be an emotional hindrance in two key ways. On the one hand, one can only feel motivated to act differently by first knowing the impact of one's behavior; on the other, a lack of practical knowledge, e.g., in preparing vegan cuisine, strongly affects one's motivation to follow a vegan diet.

Students also provided detailed analyses of their automatic, avoidant responses to these challenges. In nine cases, unsupportive social environments especially led students to avoid potentially difficult situations in the first place (e.g., not eating with family or friends). Half of all students stated that they would regularly sidestep their entire project and the consequences of their consumer behavior ("escapism" [32]). Furthermore, they observed a tendency to reduce their own demands in terms of how sustainable their consumer behavior should be (18). Finally, all students applied some sort of rationalization or neutralization strategy, for example, by questioning (a) the detrimental impact of one's consumer behavior (27) ("denial of injury" [31]), (b) one's own responsibility for change (27) ("denial of responsibility", ibid.), or (c) the meaning of pursuing one's transformation project (18)

("denial of sense", ibid.). In 12 cases, these strategies led to a desensitization, meaning that students experienced a feeling of indifference with respect to their consumption.

During the seminar, students also gained insights into factors supporting putting their transformation projects into practice. Six factors were mentioned most frequently. Firstly, connecting to their inner resources was reported by 32 students to be very helpful when they were struggling with their projects. To remind themselves and come back to, for example, their self-care, positive thinking, their intrinsic motivation, self-responsibility, and their tools for stress-release strengthened their intention to carry out the projects and to resist falling back on old habits and routines. Secondly, this connection was facilitated essentially by the broad range of practices offered within the seminar. Most notably, mindfulness, easy yoga, empathy, or breathing exercises were mentioned by 31 students as having helped support their projects. Individual students were able to identify different practices as being particular useful and could then independently engage with preferred practices at home. Thirdly, even when students did not consume as intended, practices explored in seminar helped them accept their situation, which soothed negative emotions often experienced as part and parcel with inconsistent behavior. Fourthly, while posing particular challenges in certain situations, students' social environments also served as a major factor of support in others (31). Exchange with, perceived advocacy by, and the understanding of friends and family were also deemed essential for staying motivated through difficult phases of student projects. Fifthly, 15 students found that writing research diaries helped them in pursuing their projects as it constituted an opportunity to self-reflect and discover sources of motivation. Finally, knowledge was considered a final major supportive factor (27), although this appears to have been specific to the first seminar cohort (university freshmen) whose foreknowledge on the topic of sustainable consumption was more limited on average. In the second seminar (environmental science students), an increase in knowledge led instead to an increase in the perceptions of complexity, resulting frequently in information overload and feelings of being overwhelmed.

5.3.2. Experiencing the Seminar

The second question central to our inquiry was how students experienced different elements of the seminar. The primary goal of this exploration was to understand what potential the seminar provided for learning beyond investigating individual consumption. This implies a reflection on challenges encountered by students.

We extracted five major impacts on learning among the students' reports that were not directly related to their consumption. Firstly, all students indicated that the self-experiential approach to sustainable consumption taught in the seminar was new to them and increased their knowledge related to the diversity of perspectives through which sustainable development and consumption can be addressed. Some students even remarked that the potential of this kind of seminar shifted their whole mindset concerning the possibilities and scope of university education, as they described seminar sessions as having been very personal and variable in format, something they did not experience elsewhere in their studies. Secondly, and particularly valuable in this regard, practices of mindfulness and self-

observation were introduced during the seminar, which allowed students to increase their general self-awareness substantially and provided them tools for deeper reflection beyond purely theoretical deliberation. Thirdly, nine students described how the seminar helped them cultivate more empathy, understanding, and openness to others and their life situations. In particular, they could better comprehend why other people act the way they do and why they might not be persuaded to pursue sustainable lifestyles owing to a broad range of personal challenges. Fourthly, eight students mentioned the development of self-care, self-acceptance, and self-compassion as key learning outcomes. These students further disclosed that seminar attendance helped them develop more positive relations to aspects of their lives in general. Finally, seven students indicated that the seminar strengthened their feeling of self-efficacy, allowing them, especially, to address emotional challenges, "leave the victim role", and, instead, act in a solution-oriented way.

Regarding challenges encountered within the seminar, four themes were mentioned by more than one student. The most frequent challenge mentioned by students was the need for willingness from students to engage personally with seminar content and, in particular, their personal transformation projects. In opposition to other course formats, students noticed the indispensability of taking up seminar content and activities in order better to benefit from succeed in the seminar. This sort of engagement from students hinged on their own independent pursuit of mindfulness/introspective practices, as well as regular entries in their personal diaries, which some students experienced occasionally as being too time-intensive.

The second key challenge was planned explicitly into the framework of the seminar, namely the confrontation with (inner) difficulties when putting personal transformation projects into practice (4). Despite initial information that the seminar would put students face to face with such difficulties, the intensity of the latter was underestimated by some. Talking about and sharing especially challenging inner difficulties with fellow students was a third issue encountered. Three students described certain topics addressed within the seminar as "highly sensitive, intimate, and personal". Since sharing such experiences, especially in the university context, was unusual for students, this part of the seminar threw up serious hurdles for some. The fourth challenge was related to introspective and mindfulness practices, with which students especially struggled at the beginning of the seminar. Either they did not know what they were supposed to do or experience while following these practices or they had difficulties integrating these practices into their daily lives. However, the weight of this challenge diminished over the course of the seminar.

5.3.3. Effects on Consumer Behavior

Our third research question focused on how the seminar effected students' consumer behaviors. The rationale behind this inquiry was to find out whether the abilities and skills students obtained in relation to their inner states and processes would actually enable them to pursue sustainable consumption patterns, as the relevance for action is a core characteristic of a competence. Overall, we found that the observations and learning outcomes described above influenced students on three consumption-related levels, namely their (a) awareness, (b) motivation, and (c) actual behavior.

The most widespread consumption-related effect—reported by all students—was an increased awareness of one's individual consumption patterns and, more specifically, exact details of goods consumed on a regular basis, including origin and production processes. Alongside the rise in reflection about individual consumption patterns came an enhanced knowledge of and awareness for external, environmental, and social aspects of the current consumption industries, resulting in an overall understanding of the relevance of sustainable consumption. In addition, students reported including reflective assessment increasingly in their consumer behavior. Section 5.3.1 already illustrated how the seminar attendance generally increased students' awareness for inner states and processes related to consumption; this aspect also became relevant in actual purchase or consumption situations. Here, students felt better capable of connecting to their values and needs, leading to more deliberate consumption choices instead of relying on unreflected habits or routines.

The latter point also relates to the motivational dimension of consumption-related seminar effects. Being able to relate to one's own personal values and needs when consuming reflects a shift from habitual to consciously driven and, hence, intrinsically motivated consumption. Interestingly, even students whose consumer behavior remained in line with their previous concept of sustainable consumption mentioned this effect. This demonstrates that the seminar helped the attendees root their consumption patterns in their personal values instead of orienting them toward external normative ideals of sustainability. Five students from the second seminar cohort described a similar phenomenon in which they experience a more positive relation to consumption, either due to a greater appreciation or a reduction in perceived obligations to consume sustainably. This does not entail a tendency to less sustainable consumption choices; on the contrary, as a result of this shift toward an inner orientation, students reported an intensified feeling of response-ability and stated that less sustainable consumption choices became less attractive and even "disconcerting".

In total, 49 out of 50 students reported having maintained changes to their consumer behavior after course attendance. Remarkably, the majority of students even reported changes to their consumer behavior beyond the confines of their personal transformation projects. Moreover, they expressed a willingness to, at least partly, continue developing and putting their transformation projects into practice.

6. Critical Discussion and Outlook

In the previous section, we analyzed the learning outcomes of two seminars based on the principles of SIBL and SEBL. We investigated whether these seminars could stimulate the acquisition of personal competencies among students.

Our results provide evidence that this aim could indeed be achieved. As part of the seminar attendance, students:

- obtained detailed insights into (affective—motivational) challenges of sustainable consumption and their automatic coping mechanisms to avoid or suppress these challenges (self-reflexivity/self-awareness);
- learned to tolerate these challenges instead of falling into automatic coping mechanisms (emotional regulation/emotional resilience);
- got familiar with techniques and practices that helped them connect to, nourish, and draw on inner resources pursuing sustainable consumption patterns;
- developed a stronger intrinsic motivation to consume in a sustainable way and, hence, engage in problem-oriented action;
- reported an overall improvement to their well-being as a result of increased self-awareness, self-care, self-acceptance, and self-compassion, which in turn enhanced capability to pursue a sustainable lifestyle.

As a consequence of these learning outcomes, almost all students stated that the seminar helped them initiate and maintain changes to their consumer behaviors.

Against this backdrop, we argue that SIBL and SEBL represent promising pedagogies for systematically building personal competencies for SD and SC. In our experience, these approaches carry the potential to provide the inner foundation for engaging with sustainability-related issues. More precisely, they allow students to experience the relevance of inner states and processes and their influence on actual behaviors, leading to enhanced self-awareness and self-reflection beyond purely dealing with the related matters intellectually. Doing so allows students to connect to their intrinsic sustainability-related values and strengthen inner qualities empowering engagement in problem-oriented strategies, instead of applying emotion-oriented coping mechanisms [27]. Connecting to the inner states and processes also sensitizes students for their personal limits and helps them care for their personal sustainability [80], which is to say their "physical health or natural beauty, as well as inner features such as consciousness, spiritual, cultural, and worldview-related aspects or a sense of well-being. The inner features further include perceptions and bodily experiences, as well as thoughts and values, needs and wishes, and emotional and habitual patterns" (p. 5). As Brundiers and Wiek [9] argued, this competence is also indispensable for future sustainability professionals, as this group has a particularly strong tendency to be overburdened in the face of social–environmental crises unique to contemporary society.

Results provided here must be interpreted with some caution. A first aspect to keep in mind is that we drew our findings from students' self-reporting expressed directly after the seminars. Thus, described learning outcomes and effects on students' consumer behaviors cannot be established objectively and it remains unclear whether or not they are of lasting significance. Follow-up questionnaires might be helpful to address this question with future cohorts. Moreover, the quantification provided above must also be interpreted with caution. The aim of our research was to explore the potential of a pilot seminar putting principles of SIBL/SEBL into practice and aiming at building personal competencies for sustainable consumption among students. On the basis of seminar attendees' written works, reflective reports, and feedback on the seminar, we extracted and grouped the most common statements related to our research questions. Given the explorative character of our study, none of these documents were

standardized, meaning that students could freely choose the focus of their work, reports, and feedback. At the same time, this procedure limited the scope of the data to those experiences chosen by the students. In other words, if something is not mentioned in the documents, it does not mean that the students did not experience it. The flip side of this aspect is that it is equally impossible to guarantee that students' reports actually reflect their genuine experiences with their consumer behavior. Because the discussion of inner difficulties and challenges bound up with personal transformation projects was a mandatory part for successful seminar completion, the possibility that students invented parts of these reports, or at least stretched the truth in them in creative ways, cannot be ruled out. The development of a standardized questionnaire seems to be useful for addressing this issue. It seems to us that our results can provide an inspiring basis for exactly such a questionnaire. A third aspect to consider is the fact that we looked at two different seminars, varying in student composition, scope, duration, and actual seminar content. These differences might have an effect on the depth of students' seminar experience and learning outcomes. We did not thoroughly and systematically elaborate upon the varying effects of the two seminars. Nevertheless, future research on SIBL/SEBL should look at influential factors such as seminar scope and duration, students' disciplinary background, etc. with regard to actual learning experiences. Related to this is a fourth aspect that should be taken into account when interpreting our results: the role of teaching personnel. Several students emphasized that both seminar facilitators had a positive influence on their perception of and engagement in the seminar. On the basis of our findings, we cannot rule out the possibility that our described learning outcomes may have stemmed from the students' interactions with the teaching personnel instead of being the effect of the learning approaches themselves. In order to clarify this aspect, the same seminars should be conducted by different learning facilitators and subject to systematic inquiry. More generally, we advise undertaking comparative studies of SIBL and SEBL seminars alongside more conventional approaches to ESC in order to evaluate the pedagogies' potential for helping to develop of personal competencies.

A final and more general aspect to discuss concerns competencies necessary for teaching staff hoping to facilitate self-inquiry-based and self-experience-based learning. In our experience, facilitating these approaches demands competencies that go beyond disciplinary expertise. A familiarity with introspective practices and methods for verbalizing subjective experience is indispensable, as is the willingness to personally share and deal with affective–motivational processes. The latter also demands the creation of a "safe space" in which students feel both confident and encouraged to disclose inner states and processes to their peers and facilitators. SIBL and SEBL are based on relationships of respect and trust among students and teaching staff, and such a relationship cannot be forced, but must be built with patience. That ESD educators need competencies that go beyond disciplinary expertise is not surprising. Vare and colleagues' [81] competence framework for ESD educators, for example, shows relevant parallels to the exigencies mentioned above, highlighting "empathy" and "engagement" as important competencies for ESD educators and depicting ESD as "relational" and processes of "social learning" (p. 16). At the same time, the explicit development of personal competencies—at least as it is suggested through SIBL and SEBL—raises the seemingly unaddressed question in the ESD literature as to which personal competencies are required on the part of the educators for offering such approaches. Elaborating a framework intended to provide training in

these competencies will most certainly be an important line of inquiry for teacher education for sustainable development in the future.

7. Conclusions

In this article, we introduced two new learning approaches that allow students to systematically acquire personal competencies for sustainable development in general and sustainable consumption in particular: self-inquiry-based learning and self-experience-based learning. Conducting scholarship of teaching and learning, we applied these approaches in two university seminars. Our results indicate that these approaches have the potential to increase self-reflexivity/self-awareness, emotional resilience, self-care and self-acceptance, psychological resources, and students' intrinsic motivation to consume in a sustainable way and to engage in problem-oriented action. Moreover, the vast majority reported that they changed their consumer behavior. They explained change in terms of the aforementioned learning outcomes, indicating that SIBL and SEBL might indeed develop genuine competencies for SC. Given the limitations of our study, we call for further applications of the approaches discussed here in order to further investigate the promising potential of SIBL and SEBL for educating future change agents for sustainable development.

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9.7. How mindfulness training cultivates introspection and competence development for sustainable consumption

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Abstract

Purpose: This article explores the relationship between introspection and key competencies for sustainable consumption (KCSCs). It investigates whether mindfulness training can cultivate the ability to introspect and stimulate the development of KCSCs.

Design/methodology/approach: Two independent studies were analyzed. Data were retrieved from interviews with participants of a consumer-focused mindfulness training (study 1, 11 participants), as well as from diaries of students attending a university seminar with mindfulness training (study 2, 13 students), and made subject to qualitative content analysis.

Findings: Both studies show a clear intersection between both constructs and suggest that mindfulness training can contribute to the development of KCSCs and learners' ability to introspect. The studies also demonstrated that introspection is not equally related to all competencies and that KCSCs must not be reduced to introspection.

Research limitations/implications: Both KCSCs and introspection are complex and latent constructs and hence challenging to observe. The research understands itself as a first exploratory approach for empirically investigating this complex relation.

Originality/value (mandatory): While increasing (self-)reflectivity is at the core of competence-based education, a systematic engagement with the practice of introspection as a means to enhancing reflectivity is surprisingly lacking. Mindfulness training could be a promising way to cultivate introspective abilities and thus facilitate learning processes that are conducive to competence development.

Key words: Higher education for sustainable consumption, key competencies for sustainable consumption, introspection, sustainable consumption, mindfulness, qualitative content analysis, reflectivity

1. Introduction

Higher education for sustainable development (HESD) has emerged as a field of practice and scholarship that seeks to fundamentally reorient higher education towards the purpose of sustainable

development. Higher education for sustainable consumption (HESC), understood as a subfield of HESD, focuses on sustainable lifestyle changes and promotes competencies that allow individuals to act more sustainable as consumers and citizens (Adomßent *et al.*, 2014). HESC aims at improving the capacity of individuals to connect to and act upon knowledge, values and skills in order to respond successfully and purposefully to the demands of sustainable consumption. A key feature of this capacity is self-reflectivity, understood as learner's capacity to distance themselves from, observe, and critically engage with their inner states and perceptions. These self-reflective capacities closely resemble qualities associated with introspection. However, despite the growing prominence of educational approaches within HESC and the importance that they attribute to self-reflectivity, little attention has been payed to the concept of introspection and to practices focusing on its cultivation in learners.

In this paper, the authors aim to fill this gap and explore the potential contributions that introspection can make to facilitate learning processes in HESC. The authors do so by focusing on mindfulness training as a practice that – among other qualities - has proven effective in cultivating introspective abilities. Mindfulness training aims at "bringing awareness to current experience – observing and attending to the changing field of thoughts, emotions, and sensations from moment to moment – by regulating the focus of attention" (Bishop *et al.*, 2004, p. 232). It has recently been suggested as a promising way for individuals to cultivate more sustainable lifestyles (Fischer *et al.*, 2017). In this study, the authors empirically examine to what extent mindfulness practices can promote the ability to introspect, and thereby stimulate the development of key competencies for sustainable consumption (KCSCs).

The paper is structured as follows: It begins by outlining and relating the three main concepts: (i) KCSCs as learning outcomes in HESC, (ii) introspection and the ability to introspect, and (iii) mindfulness as a practice conducive to the cultivation of introspective abilities (section 2). Two studies are then introduced that empirically investigate the relationship between mindfulness training, introspective abilities and KCSCs: the first from an eight-week consumer-focused mindfulness training, the second from a university seminar that integrated mindfulness practice. The authors discuss the two studies and their contexts and present research methods and findings in sections 3 and 4. Section 5 provides a general discussion of the results, followed by a reflection of the studies' limitations (section 6) and concluding remarks (section 7).

2. Theoretical background

Sustainability is an idea whose educational relevance is increasingly recognized by universities around the world. While there is a general consensus on the importance of HESD, there is considerable controversy over which learning outcomes HESD should focus on. At the heart of it was the question of whether the success of sustainability education should be measured in terms of educational effects or sustainability effects. Depending on what side they prioritized, approaches in HESD were labeled as instrumental vs. emancipatory (Wals, 2011), interventive vs. humanistic (Sauvé, 1996), or deterministic vs. indeterministic (Jickling & Spork, 1998). In search for conceptions of learning

outcomes that focus on the *capacity* of individuals to productively engage with sustainability problems rather than on narrowly defined behavioral outcomes, competence-based approaches have gained traction in HESD literature and practice (Mochizuki & Fadeeva, 2010).

According to the influential definition of Weinert, competencies can be understood as “a roughly specialized system of abilities, proficiencies or skills that are necessary or sufficient to reach a specific goal” (2001, p. 45). This specialized system is set up to deal with complex demands in specific domains of action. Dealing with these demands requires the interplay of internal structures such as cognitive, emotional and motivational dispositions (Hartig *et al.*, 2007). Some competencies are considered as more fundamental than others, because they are relevant *across* specific domains and for all individuals. This transversal scope is expressed in the term ‘key competencies’. A prominent attempt to identify such key competencies is offered by the framework Definition and Selection of Competencies (DeSeCo), in which three categories of transversal key competencies are identified: (1) interacting in socially heterogeneous groups, (2) acting autonomously, and (3) using tools interactively (Rychen & Salganik, 2003). Several approaches since then have worked to identify, describe and operationalize key competencies that are relevant across singular domains in sustainable development (Barth et al., 2007; Wiek et al., 2011).

This study uses a framework of key competencies for the domain of sustainable consumption (KCSCs) that has been developed by Fischer and Barth (2014). The authors use the threefold categorization of key competencies suggested in the DeSeCo framework to identify seven key competencies that are both tuned to specific challenges in the domain of sustainable consumption and relevant for other domains in life (Table 1).

Table 1: Key Competencies for Sustainable Consumption (KCSCs) (Fischer & Barth, 2014).

Key competency		Exemplary dispositions
Act autonomously		
KCSC 1: ***Reflection***	Competency to reflect individual needs and cultural orientations	• knowledge of how preferences are culturally contextualized and shaped • ability to critically engage with commodification processes • willingness to explore and scrutinize one’s own aspirations, wants and needs, as well as established habits and practices of their satisfaction
KCSC 2: ***Action***	Competency to plan, implement, and evaluate consumption-related activities	• knowledge of criteria to identify sustainable options • ability to use criteria to assess different consumption choices • willingness to act responsibly in consumption-related activities
Interact in heterogeneous groups		
KCSC 3: ***Role-Taking***	Competency to critically take on	• knowledge of the roles, influence, rights and responsibilities of different actors within the

	one's role as an active stakeholder in the market	market • ability to take the perspectives of other market actors • willingness to forge strategic alliances with other actors to achieve common goals
KCSC 4: ***Communication***	Competency to communicate sustainable consumption	• knowledge of ideas, values and different conceptions of sustainable consumption • ability (cognitive, emphatic) to communicate this knowledge with diverse audiences • willingness to communicate with diverse conversational partners and audiences
Use tools interactively		
KCSC 5: ***Knowledges***	Competency to use, edit and share different forms of knowledge	• knowledge of different forms of "knowing" • ability to search for and evaluate the validity of the information • willingness to endure tensions that arise from exposure to contradicting information
KCSC 6: ***ICT***	Competency to use information and communication technology (ICT) interactively	• knowledge of opportunities and risks of ICTs • ability to use the potential of ICTs for social interaction • willingness to engage critically with ICT and its usage to share information with others
KCSC 7: ***Vision***	Competency to think visionary and to consider interrelatedness	• knowledge of the interlinkages between consumption and production systems • ability to appraise the implications of one's own consumption choices for others today and in the future • willingness to conceive of the future as principally undetermined and shapeable

Like the overall concept of key competencies, KCSCs focus on critical, self-determined and self-reflective individuals. They form a basis for designing learning processes that aim to systematically improve individuals' self-reflectivity, that is their capacity to deliberately act upon their values, motivations, and knowledge. This capacity has been intensively studied outside the HESD literature as part of introspection.

The term introspection is composed of the Latin 'intra', meaning 'inward', and 'spicere', which means 'to look at'. Schwitzgebel (2016) describes introspection "as a process by means of which we learn about our own currently ongoing, or very recently past, mental states or processes". These mental states and processes englobe "the whole field of pure experience" (Bitbol & Petitmengin, 2016, p. 57), meaning the subjective experience of affective-cognitive phenomena like thoughts, attitudes, desires, motivations, judgments, and emotions,, but also somatic (e.g. movement, muscle activity) and sensory (visual, auditory, olfactory, gustatory, palpatory) perception.

Contrary to the assumptions of early psychology, vast research now points out that we do not have automatic or unbiased access to our own experience (Wilson, 2004). In other words, introspection can be more or less accurate, which implies that there is some sort of *introspective ability* determining the extent and quality with which subjective experience is observed. Investigating upon this ability, however, poses an unavoidable problem, namely that “it is impossible to directly assess the contents of experience” (Schooler & Schreiber 2004, p. 17), as these are exclusively accessible to the experiencing subject. When inquiring peoples’ introspection, researchers must instead rely on peoples’ verbal reports on their experiences. As Schooler and Schreiber (ibid.) emphasize, talking about introspective observation does not only require the subject to consciously experience something (experiential consciousness), but also presupposes an awareness of making the experience (meta-awareness). Against this backdrop, the authors define introspection as the conscious observation of subjective experience while knowing that one is making this experience. The ability to introspect can then be defined as the ability to consciously observe subjective experience while knowing that one is making this experience. Given that the researcher is dependent on manifest data of such observation (data) for analysis, from an empirical standpoint, the introspective ability is also inextricably linked to a person’s ability to verbally describe the observation of subjective experience (Figure 1).

Cultivating the ability to introspect is the subject of various practices and scientific disciplines studying them. Mindfulness practices have turned out to be a particularly promising and intensively researched approach. Researchers suggest that one of the key mechanisms of mindfulness practices is that it helps those practicing mindfulness to „disidentify from the contents of consciousness and view his or her moment-by-moment experience with greater clarity and objectivity“ (Shapiro *et al.*, 2006, p. 377). In fact, the cultivation of such a “witnessing perspective” (Vago, 2014, p. 30) is considered key by mindfulness practitioners (Pagis, 2009; Kerr *et al.*, 2011). Studies inquiring introspective self-reports (Fox *et al.*, 2012) as well as their relation to neurological processes (Lutz *et al.*, 2007 & Jo *et al.*, 2015) provide further evidence that mindfulness training improves the ability to introspect. In addition, other research finds that mindfulness practice can develop cognitive abilities (such as memorization) (Chiesa *et al.*, 2011), thereby facilitating the verbalization of inner experience (Fox *et al.*, 2012).

More recently, some scholars have suggested that mindfulness training might be a promising way for fostering more sustainable consumption behavior. The literature suggests five different mechanisms through which the cultivation of mindfulness could lead to increased sustainable consumption (see Fischer et al., 2017; Geiger et al., 2019), namely that mindfulness training might

1. allows people to disrupt habitual consumption routines
2. stimulate individuals‘ physical and psychological well-being, which seems to be related to sustainable behavior
3. help individuals to clarify their intrinsic values while decreasing the importance of material values
4. foster pro-sociality and compassion. Compassion and altruistic values in turn, are positively linked to pro-environmental intentions and behavior

5. overall contribute to closing the widespread gap between individuals‘ pro-environmental attitudes and their actual behaviors

While mindfulness should not be reduced to introspection and encompasses several other dimensions relevant for sustainable consumption, such as the development of ethical virtues (e.g. Grossman, 2013), an underlying core mechanism behind the aforementioned effects is the practice's potential to cultivate “introspective awareness of lived experience” (Grossman, 2019). By raising awareness of inner states and processes, individuals can better relate to their personal needs and values while sharpening the observation of drivers in unsustainable consumption routines. In sum, this might enable them to pursue more sustainable actions in concordance with prevailing values.

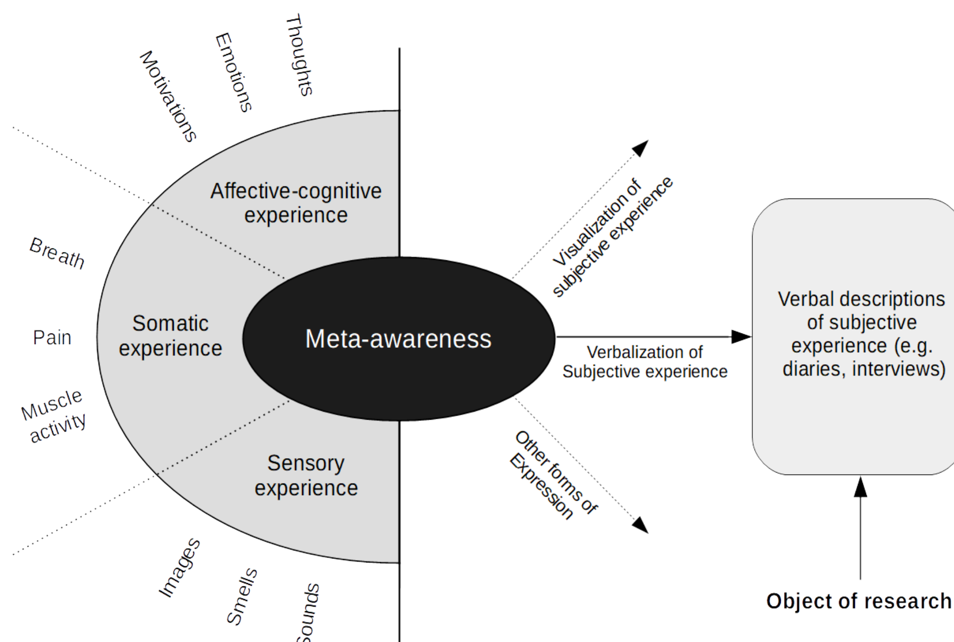

Figure 1: Dimensions, objects and forms of expression of subjective experience.

It is precisely this potential that makes mindfulness practice an interesting activity for stimulating KCSCs. Indeed, on a conceptual level, both concepts – introspection and KCSCs – intersect when it comes to consumption-related inner states and processes. Several KCSC-related dispositions, like the ability to reflect on needs or deal with emotional discomfort arising from exposure to ambiguous information, require introspective abilities. In view of this, it is remarkable that a systematic engagement with introspection as a way to engage with consumption-related inner states and processes is still missing. The following studies set out to address this gap.

3. Method

3.1. Research design

The aim of this research was to empirically examine to what extent mindfulness practices can promote the ability to introspect, and thereby stimulate the development of KCSCs. For this purpose, the authors conducted two different exploratory studies, inquiring (Study 1) an eight-week long Mindfulness-Based Intervention (MBI) that was delivered to university students within the framework of the BiNKA project, and (Study 2) a university seminar incorporating mindfulness practice. Data collection was undertaken independently for each study and will be described below.

For the data analysis, Kuckartz‘ (2016) qualitative content analysis (QCA, Kuckartz, 2016) was applied. For this purpose, a mutual coding scheme encompassing both KCSCs and introspective abilities was developed. The first part of the coding scheme on KCSC was deduced from Fischer and Barth (2014), resulting in seven main categories. The second part of the coding scheme was predicated upon the different objects of introspective observation as outlined in section 2.2. In order to allow for a more nuanced differentiation of the introspective reports, further distinctions were inductively made between observations on 'thoughts', 'attitudes', 'judgments', 'habits', 'values', 'motivations' and 'intentions', as well as on 'emotions' and 'moods', as these types of subjective experience were most striking in the data material. The coding was carried out by two independent teams, each consisting of two student research assistants (SRAs). One team focused on the KCSCs coding, the other on the introspection scheme. SRAs were taught to strictly follow the instructions of the related coding guidelines. Inquiry audits were included to address unclear understandings of categories and control for reliable codings (Chwalisz *et al.*, 2008). Incongruent codings between the SRAs were discussed between the coders (*consensual coding*, Schmidt, 2004; Kuckartz, 2016), and, if no consensus could be reached, decided upon by a senior researcher.

The analysis consisted of four steps. In the first two steps, relevant sections within both data were coded following the KCSCs and the introspective coding scheme and intersections extrapolated. These tasks were conducted independently and undertaken in the reverse order (study 1 started with the KCSCs, whereas study 2 began with the coding of introspective statements). This was due to the different foci of the MBIs in study 1 and study 2: The first MBI was explicitly designed to foster more sustainable consumer behavior, whereas the second MBI focused on the development of introspective abilities (see sections 3.1 & 3.2). In the third step, conducted by two independent senior researchers, the coded text segments resulting from step 1 and 2 were further explored in a hermeneutic in-depth analysis (Kleemann *et al.*, 2013) in order to interpret and triangulate the findings of both studies and coordinate their presentation. Fourthly, provisional results were regularly discussed and mutually validated within the research team in order to broaden the perspectives on the findings (*researcher validation*, see Denzin, 1978).

3.2 Study 1

3.2.1. Intervention design

Rooted in the Mindfulness-Based Stress Reduction (MBSR) program (Kabat-Zinn, 2005), the MBI consists of eight weekly session of 90 minutes, daily informal practice and a four-hour day of mindfulness (see Table 2). It is enriched by consumption-focused practices from the field of education for sustainable consumption. The first weeks of the training focused on generic mindfulness course content (e.g. body scan, breath observation). In week five to eight, more consumer-specific topics (e.g. dealing with desires and needs) were gradually introduced.

Table 2: Overview of the contents and mindfulness exercises taught in the nine sessions.

Session	Content
Session 1	Introduction: What is mindfulness? • Course schedule and general conditions • Definition and functioning of mindfulness • Introduction of “Bodyscan” • The "autopilot"
Session 2	Dealing with challenges and difficulties in meditation • Mindful movement • Introduction "Breathing Observation" • Body scan • What are the challenges to be mastered during meditation?
Session 3	(Un-) Satisfaction - "I can't get no satisfaction!" • Introduction “mindful movement” • Breathing observation • Body scan • What makes me (un-) satisfied?
Session 4	Emotional Intelligence: Dealing with Difficult Feelings • Breathing observation • Introduction of “walking and standing meditations” • Perceiving and naming feelings
Session 5	Wishes and needs • Basis of mindful communication • Speaking in feelings and needs instead of demands and judgements • Introduction to the practice of mindful encounter
Session 6	Friendliness and compassion • Introduction to the meditation of kindness and goodness (Metta-Meditation) • The importance of a benevolent and friendly attitude towards ourselves and the world.

Day of mindfulness	Gratitude and appreciation • Walking and standing meditation • Breathing observation • Introduction of “mindful eating” • Metta-Meditation
Session 7	Mindful consumption - being and having • Mindfulness at the sensory gates • Mindful movement • What is mindful nutrition, what is mindful consumption?
Session 8	A mindful world - from the inside out • Introduction to 4-element meditation • Walking and standing meditation • Metta-Meditation

3.2.2 Data collection

Eleven student course participants were recruited out of 64 students participating in the BiNKA training for individual semi-structured in-depth interviews after completion of the intervention. Participation in the interviews was voluntary and not remunerated. Half of them were randomly selected (5), the other half was based on an extreme case selection strategy (6). Extreme case selection was based on pre-post differences from a questionnaire of the variables mindfulness and sustainable consumption in cloth and nutrition as well as sum scores of these differences as identified in the quantitative study from the BiNKA project. Two students have been selected for their extreme positive difference in mindfulness, two for their extreme sum score of differences in mindfulness, nutrition and clothing behavior and two for their extreme differences in either clothing or nutrition behavior.

All in-depth interviews have been recorded and transcribed by student research assistants according to the procedure suggested by Lamnek & Krell (2010). In addition to the interview material, reflective diaries produced by the course participants were used as a complimentary data source. This approach was chosen to reconstruct the subjective learning processes and subjective theories of the students (Helfferich, 2011). The student sample consisted of seven female and two male students, all enrolled at Technical University Berlin either as undergraduate (3) or graduate students (6). The demographic data of two students are not available.

3.3. Study 2

3.3.1. Intervention design

During the winter term 2016/17, two seminars were run at Leuphana University Lüneburg under the title “qualitative approaches to ideas of equity underlying the consumption of animal-based foods”. They addressed both graduate and undergraduate students from interdisciplinary backgrounds. Within

these seminars, students dealt with a series of arguments both in favor and against the consumption of animal-based foods, a topic highly relevant with regard to sustainable consumption (Hedenus *et al.*, 2014). Students were then asked to observe the affective-motivational processes that occurred in them when dealing with these arguments. In order to support this self-observation, a mindfulness meditation practice of one hour – led by a professional meditation trainer – was part of each seminar session (Frank & Fischer, 2018). The practices offered a variety of foci, including body scans, breathing observation and open-monitoring meditations (Lippelt et al., 2014). Students also received instructions for home practice and documented their observations in experience diaries.

3.3.2. Data collection

In total, 55 students (13 male, 42 female) regularly attended the seminars, comprising 29 undergraduate (8 male) and 26 graduate (5 male) students. As the resulting data material (55 diaries) was too vast, the analysis was limited to 25 percent of the material (13 diaries, of which 7 undergraduates, and 6 graduates). In analogy to study 1, half of them were randomly selected (7 diaries), the other half was chosen based on three criteria (2 diaries each), namely(1) the scope of diaries in terms of their total word count (shortest and longest), (2) the amount of diary entries (less frequent and most frequent) and (3) the variety of topics they covered. Students were asked to use a template for the diary, covering the following topics: 'observations during the seminar', 'observations during daily life', 'observations during mindfulness practice', 'observations regarding the writing of the diary' and 'other observations'. For the diary selection, the variety of observations documented in the diaries was counted and the extreme cases selected.

4. Results

4.1. Study 1

The first step of the data analysis was to find out whether the intervention could indeed stimulate the development of KCSCs. The coding process resulted in 163 text segments for KCSCs. The number of text segments per interview varied between a minimum of 7 and a maximum of 24, with an average of 15 text segments per interview. Due to the mindfulness focus of the study's intervention, it was expected that the various KCSCs would not been addressed to the same extent. The distribution of coded segments over the seven KCSCs confirmed this expectation. Among the competencies that featured only rarely are KCSCs 6 (ICT, 1 text segment), 7 (Vision, 8), 5 (Knowledge, 8), and 3 (Role-Taking, 8), and competencies that seem to have been stimulated more strongly by the intervention are KCSCs 1 (Reflection, 91), 4 (Communication, 30), and 2 (Action, 17).

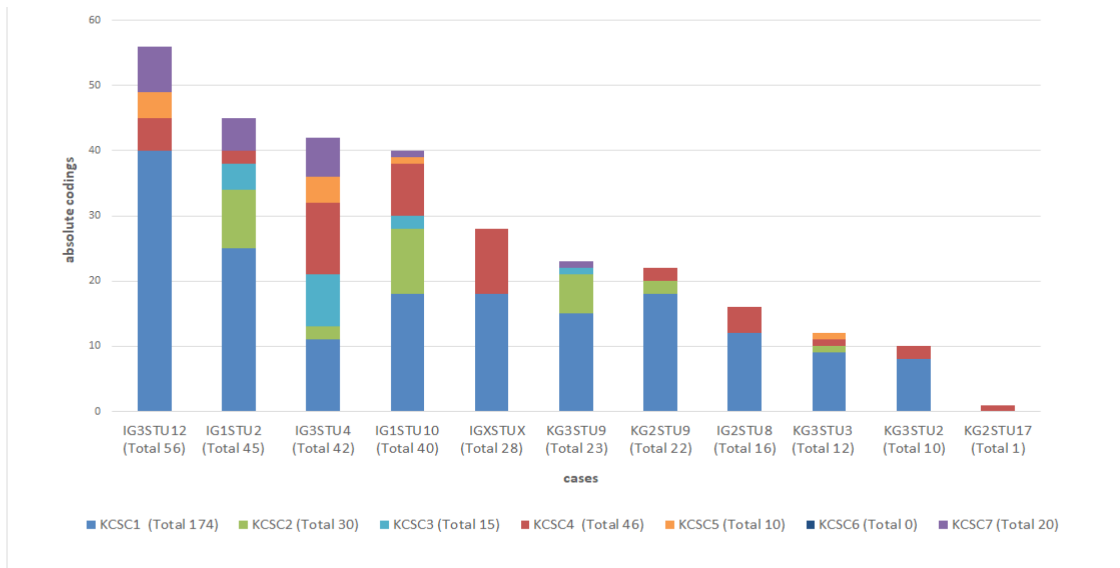

Figure 2: Absolute frequency of intersections between introspective statements and KCSCs among interviews (study 1).

In the second step, the authors analyzed the intersection between KCSCs and introspection. In total, 296 text segments were identified in this intersection. Segments per interview ranged between 1 and 27, with an average of 27 intersections in each interview (Figure 2). There are more intersections than KCSCs or introspective statements. In detail, it is again reflection (KCSC 1, 174 intersections), communication (KCSC 4, 46), and action (KCSC 2, 30) that show a larger number of intersections, whereas KCSC 7 (Visions, 20), KCSC 3 (Role-Taking, 15), and 5 (Knowledge, 11) show fewer intersections. The coded text passage of KCSC 6 (ICT) did not intersect with an introspective statement.

Looking at the KCSCs and their intersection with introspective statements in detail, intersections with KCSC 5 (Knowledge) and KCSC 3 (Role-Taking) share only 3% resp. 5% of the intersections in 4 interviews each. Regarding KCSC 5 (Knowledge), three participants observe that the knowledge about one’s own consumption-related routines and habits obtained through the (introspective) mindfulness practice is helpful and supportive for fostering sustainable consumption. In one case, a participant thought that mindfulness practices are a good approach to engage people for example in elementary school. All other intersections refer to observations and thoughts of one participant. Commenting on awareness of sustainability criteria for his own consumption, the interviewee said *“[…] actually I could look a little bit more on what I'm actually buying. Do I really need it?”.* Concerning KCSC 3 (Role-Taking), three students observe their motivations and attitudes related to taking up sustainable consumption behaviors, while two reflect explicitly upon intentions to consume more sustainably. Talking about this issue an interviewee said *“There are also many who think or live the same way, that I have role models that I look at: Yes, I would like to do that even more, or it is very interesting what life ideas and projects or other things there are*” (IG3STU4). Only one student evaluates their knowledge on supply and demand.

More frequently, intersections with KCSC 7 (Visions, 5) and with KCSC 2 (Action, 6) can be found. They account for 7% resp. 10% of all intersections. The intersections with KCSC 7 (Visions) mainly occur in three interviews, where students' expressed concerns about negative consequences stemming from their consumption behaviors. In single statements, students mention how they have started to observe their attitudes towards responsibilities for a sustainable future, their intentions to develop a more empathic posture toward others, or that they have started to reflect on their opportunities to more actively promote social change. For example, one students reports on *"[...] the feeling that there are perhaps things for which it would be worth standing up for, that is becoming politically active" (IG1STU10)*. Intersections with KCSC 2 (Action) fall into three categories. First, a student evaluated of one's own consumption behavior on the basis of sustainability criteria, second, two students observed in their daily routines alternative strategies for impulsive buying, and third, a student reflected on concrete consumptive actions (e.g. "*I ate it, yes, it tasted sweet too, yes, but I did not notice it anyway, at all"* (KG3STU9).

The vast majority of intersections are found in KCSC 4 (Communication) and KCSC 1 (Reflection), appearing in ten out of eleven interviews. Intersections between introspection and KCSC 1 constitute for more than 59% of all intersections, while intersections with KCSC 4 account for 16% of all intersections. Equally distributed among interviews, but less prominently covered within single interviews are intersections with KCSC 4 (Action). In five interviews, participants reflected on their thoughts on and evaluations of criteria for sustainable consumption (e.g. *origin of clothes, food ingredient) or* their consumption related attitudes and feelings: "I ha*ve noticed that [meat] at all. I just had a feeling of disgust" (IGSTUX)*. Another interesting observation is, that four students noticed that exchange and discussions with others during the mindfulness training impacted their consumption-related thoughts and behavior. Concerning KCSC 1 (Reflection), nine out of eleven participants observed drivers and barriers for changes in their consumption behavior. Five of them identified underlying consumption-related needs and motives, and motives and connected these with consumption-related feelings. Moreover, four students observed changes in their understanding of consumption. Statements of four participants included affective-motivational changes leading to intended or even undertaken adaptations of their consumer behaviors. Observations of increased affective evaluations of consumer goods can be found in four interviews.
"I often find it difficult because this is often a conflict situation. What I feel like eating and what I think is right now. And I often find it difficult to negotiate this. Bringing that [conflict] together with my feelings is something I like" (IGXSTUX).

The comment below illustrates that students reflected on solving their consumption related conflicts by integrating feelings into their decision processes. Three students observed discrepancies between their consumption-related attitudes and their consumption behavior. For example, one interviewee said: *"[…] for example with animal products, in this case I am not ready [to change] yet [...]"* (*IG3STU4)*. Single statements are dealing with reflections on sensory perceptions during food consumption and on the mindfulness teacher's influence on the participants' own perceptions.

4.2. Study 2

In the first step, the authors investigated whether the seminars could stimulate the ability to introspect among students. The application of the coding scheme yielded a total number of 884 introspective statements, distributed as shown in Table 3. The number of statements varied greatly in between the diaries, ranging from a minimum of 18 up to a maximum of 226. The mean number of statements was 68. Although students reported observations on all types of introspective experience, they particularly reflected on judgments and emotions/moods related to dealing with arguments, as could be expected from the seminar content.

Table 3: Distribution of introspective statements (in absolute numbers).

Type of introspective statement	Frequency
Observation of thoughts	109
Observation of attitudes	84
Observation of judgements	142
Observation of habits and behaviors	78
Observation of values, motivations and aims	53
Observation of emotions and moods	225
Observation of sensory experience	13
Observation of physical sensations	36
Statements regarding the verbalization of introspective experience	9
Assessment of (the development of) introspection within the seminar	3
Assessment of the own (development of the) ability to introspect	34
Total	884

Moreover, the authors analyzed the students' self-estimation on how their introspective ability developed over time. 34 statements from ten diaries were identified representing such self-estimations. These statements suggested that the mindfulness practice allowed students to develop this ability. While in the early entries basically all students reported difficulties in following the meditations and (verbally) reflecting on internal experiences, over time, the majority describes how the practice helped them, for example, to "feel their body" or to "become aware of one's feelings". They also explicitly mentioned that they felt more at ease with verbalizing their experiences as the seminar progressed. In general, they stated that the seminar helped them to focus on and become more sensitive towards their inner sensations not only during seminar sessions, but also during their daily lives. In sum, this is evidence that the seminars could indeed stimulate the students' ability to introspect, and especially their observation of affective-motivational processes.

In the second step, the intersection between introspection and the KCSCs was analyzed as they appeared within the diaries. In total, 278 intersecting text segments were identified. Segments per diary ranged between 6 and 96, with an average of 21 entries per diary (see columns in Figure 3). The overall relative intersection between introspective statements and KCSCs codes was 21,1 %, suggesting the existence of a relation between both constructs.

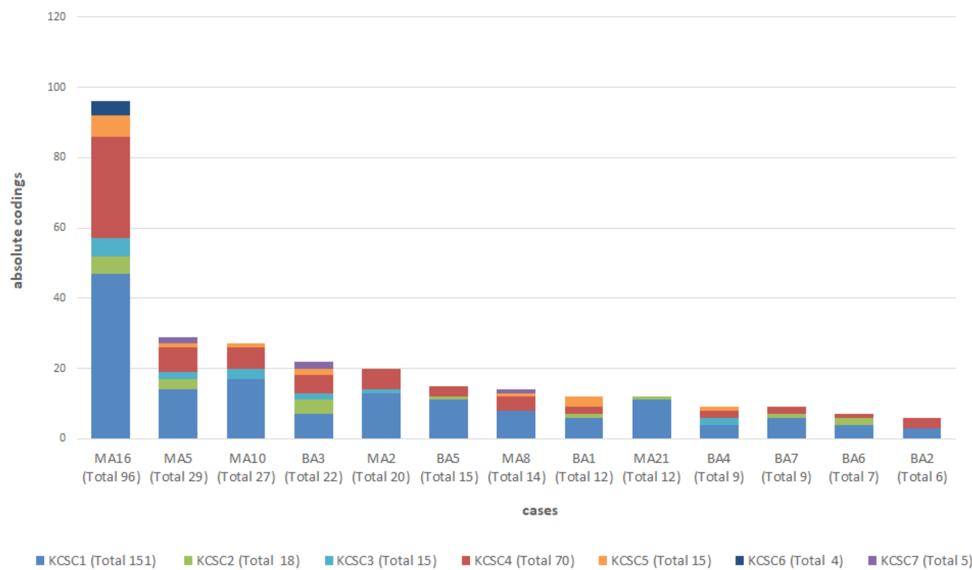

Figure 3: Absolute frequency of intersections between introspective statements and KCSCs among diaries (study 2).

A closer look at the coded text segments along the KCSCs will further clarify this intersection. Given the seminar's focus on the observation of affective-motivational processes when dealing with arguments related to the consumption of animal-based foods, it could be expected that not all competencies would be equally addressed. As shown in figure 3 (segments of each column), this expectation can be confirmed. Intersections with KCSCs 6 (ICT) and 7 (Vision) were barely found within the diaries. Concerning the first, almost all diaries make clear that students used different types of media to inform themselves about animal-based foods during the seminar; however, there were almost no reports on the inner experience of using ICT. Only one student described how pictures and movies on the topic prompted stronger emotional responses than pure texts. Concerning the second, visionary thinking is by definition oriented to the future and hence not an object of momentary subjective experience. Related statements (from three diaries) described negative emotional reactions toward information that opposed the students' visions (e.g. frustration because the environmental impact of animal production is insufficiently problematized in society and will thus not change in the future).

KCSCs 2 (Action), 3 (Role-Taking), and 5 (Knowledge) intersections have been found more prominently. Eight diaries provided intersections with KCSC 2. Overall, these statements contain reflections of inner cognitive, sensual, emotional and conative processes before, during and after concrete consumption-related decisions. Moreover, students described how these processes either facilitate or hinder intended decisions, and observe their inner reactions to the latter, for example satisfaction when acting according to one's values, or a bad conscience when it is not the case. Finally,

text segments for this competence demonstrated an awareness of affective-motivational and sensual judgments that influenced the evaluation of consumption-related decisions.

“When I took a bite I realized that it contained ham. I didn’t make a drama out of it and finished it. However, I had a weird feeling about it, because I knew that I was eating meat. It was not really disgust, but definitely some sort of rejection.” (BA2)

The findings for intersections with KCSC 3 (Role-Taking, 6 diaries) somewhat overlapped with the aforementioned results. In general, the students showed a clear awareness of their role as active stakeholders and described both cognitive and affective-motivational processes related to this perceived role (e.g. feelings of guilt). Less frequently, they reported emotional reactions when becoming aware of their lack of information and unreflected consumption choices.

“It was irritating for me to realize my lack of knowledge about alternative [e.g. grass-fed] meat consumption” (MA10)

Intersections with KCSC 5 (Knowledge) were found in seven diaries. The related intersections have been divided into two categories: The first category comprises introspective statements on emotional reactions when being confronted with conflicting arguments. In six cases, students either observed that they tend to reject information that is opposed to their own point of view or feel uncertain, even anxious due to such a confrontation. Only in two cases, dealing with conflicting arguments was perceived as an intriguing activity. The second category consisted of statements expressing an increased awareness (and related affective-motivational reactions) of the limits of one’s own knowledge:

“I experienced the discussion as very exhausting today, because […] I had the feeling that the others knew more about the topic than I did. This made me feel unconfident.” (BA1)

The vast majority of intersections were related to KCSC 1 (Reflection) and 4 (Communication). All diaries contained statements regarding the first competence. They show reflections on personal values, interests and needs, as well as the tensions between them. In the latter case, eleven students contemplated on the (mostly negative) affective-motivational reactions prompted by clashing values, interests and needs. They stated to have developed an awareness for personal mechanisms of suppression and avoidance entailed by these affective-motivational reactions:

"I am weak in moments that make me weak. I observe how I start to turn the things in a way it suits me and look for excuses in order to sooth my bad conscience”. (BA7)

Statements from four diaries demonstrated meta-reflections on values, interests, and needs, in the sense that students did not only observe these, but also deliberated on their contingency and the various socio-cultural factors that constituted them. Intersections for KCSC 4 (Communication) were distributed among twelve diaries. Again, observations of affective-motivational reactions regarding communication processes were predominant. Students described such reactions in a variety of

contexts, for example during family events, when speaking with friends on the topic, in the seminar or when privately dealing with new information (e.g. reading, watching a movie etc.). The reactions ranged from feelings of frustration, desperation and anger, to uncertainty and anxiety, to expressions of curiosity, hope and satisfaction. Particularly striking are statements in which students observed in which ways these emotional reactions influence communication processes and their dealings with arguments related to the consumption of animal-based foods. They also described how this awareness enables them to verbalize and communicate their own emotional reactions and to relate themselves more openly to different standpoints.

"It shifts my perception to inner sensations and helps me to understand my own behavioral patterns. I become aware of emotional processes that would often remain unconscious. I can express them." (MA16)

5. General discussion

Previous findings showed that introspection and learning to introspect are conducive to cultivating reflectivity. In this study, the authors explored in how far mindfulness training as an introspective practice can promote the development of KCSCs. The findings of the two studies show that in the analyzed data numerous self-reports of introspective insights intersected with (self-reported) changes in different competence areas. Both the quantity and quality of these intersections can be interpreted as an indication that mindfulness practice, through cultivating the ability to introspect, is very well able to stimulate processes of reflection on sustainable consumption and thus promote the development of KCSCs. At the same time, the two studies show that this potential of mindfulness practice is differently pronounced for the different sub-competencies. In both studies, KCSCs 1 (Reflection) and 4 (Communication) have by far the most intersections with introspection. This observation is not surprising considering that the two competencies clearly relate to what introspection commonly focuses on (i.e., reflecting and articulating). Qualitatively, the data indicate that the students have actually reflected on their subjective experiences and not remained restricted to the mere observation of internal processes. In the areas of KCSCs 2 (Action), 3 (Role-Taking), 5 (Knowledge), and 7 (Vision), both studies have shown some references, but these are only isolated. With regard to competencies in the use of ICT (KCSC 6), no significant stimulation potential is observed in the material. In summary, this study suggests some clear potentials of training introspection through mindfulness practice for competence development, especially when it comes to reflecting on intentions, attitudes and values, as well as the perception and reflection of emotional reactions to external stimuli (e.g. in social and communicative contexts). The potential to directly stimulate the acquisition of system or action knowledge (e.g. about connections between production and consumption) through introspection seems rather limited; however, it might be indirectly influenced, for example when the focus is on emotional responses to prevailing production realities and their socio-environmental impacts.

A closer look at the current literature on competence frameworks in HESD give strong reason to conclude that the strong overlaps between introspective abilities and reflective competencies cannot be

attributed to the specifics of the chosen KCSC framework. Current competence frameworks in HESD stress the vital role of reflexivity for learning processes and competent action, for example when they refer to "strengthening the capacity for reflection" (Barth *et al.*, 2007, p. 421) and "methods to support learning and reflexivity" (Wiek *et al.*, 2011, p. 213) as enablers of competence development. Similarly, the clarification of norms and values, as well as the ability to navigate the normative dimension of sustainability issues is given broad recognition. Normative competence features as a distinct key competence in Wiek *et al.*'s (2011) framework, and is directly connected to reflexivity in Lozano *et al.*'s approach that considers "reflection on one's own values, perceptions, and actions" (2017, p. 5) as a key feature of critical thinking and analysis. While there seems to be broad agreement on the overall importance of these competencies, research on specific teaching and learning approaches to promote them in HESD is still in its infancy (Lozano *et al.*, 2017; Shephard *et al.*, 2019). Hence, those competencies that resonates most strongly with introspection in the present study are also included prominently in established competence frameworks in the broader field of HESD. What this study adds to this emerging field of research is that it shows how intensively reflective and communicative competencies have been stimulated by mindfulness practice as a teaching and learning approach, and how strongly these competence-related learning processes overlap with general processes of learning to introspect. This is an original contribution, as the training of introspective capacities through practices like mindfulness has been largely neglected as a potential facilitator of competence development so far.

Three observations give rise to further discussions and indicate directions for future research in this area. The first observation is that the analyses clearly show that the interviewees have started to reflect themselves in their roles as consumers and citizens. However, the data also shows that this ability is used in very different ways to deal with incongruencies and inconsistencies. For example, some of the interviewees notice inconsistencies between their attitudes and their actual consumption actions and reflect on related tensions and emotional inconveniences. However, the intentions or strategies that the study's informants mentioned to resolve these inconsistencies show that perception and reflection by no means have to result in more sustainable behavior - for example, if interviewees, after having practiced mindfulness, out of self-care, mildness and indulgence towards themselves, now deliberately intend to act unsustainably. Introspection seems to have the potential to stimulate deliberation on and a general engagement with normative issues, but does not automatically resolve discrepancies towards sustainability. A second observation concerns the distinction between (self-)*observation* and *analysis* as two fundamentally different mental modes of operation. Mindfulness practices focus on self-observation and exploration of one's own inner states. They thus give room to open perception and deliberately distinguish themselves from an abstract, analyzing reference to experience. The data used in the two studies stems from different data collection situations - from an interview setting, which tends to be more reflective in nature, to diary entries, which tend to encourage self-observation. Consequently, study 2 contains very limited references to the development of a meta-consciousness, which would be expressed, for example, by students not only noticing how they react emotionally to a situation, but also being able to perceive which strategies and patterns they applied to deal with these emotional reactions (for example with regard to KCSC 5, Knowledge). However, in-depth analyses of study 2 have shown that students are very capable of such abstractions when faced with the task of analyzing their own diary entries (Frank & Fischer, 2018). In this respect, it can be hypothesized that

introspective training through mindfulness practice may only fully develop its educational potential if it is embedded in a well-coordinated combination of *introspective* and *analytical* phases, e.g. through self-inquiry-based learning (SIBL, see Frank & Stanszus, 2019). A third observation concerns aspects that were triggered in the interventions and could have thus been expected to feature prominently, but eventually only rarely occurred during the analyses. These include the strong focus of mindfulness practices on sensory information, which were hardly mentioned by the interviewees, especially in study 1. It was also found that the emotional responses reported seem to have been mainly triggered by ecological aspects (environmental protection) and animal welfare issues addressed in the interventions. Especially in study 2, normative principles of intra- and intergenerational justice did not seem to have resonated as strongly with the participating students, although this effect might be explained by the fact that the consumption of animal produce is strongly connotated with animal-ethical and ecological problems (e.g. Ruby, 2012).

Overall, the findings show that mindfulness trainings are potentially powerful in engaging learners in processes of self-reflection, which helps them to clarify consumption-related inner states and processes such as values, beliefs and intentions. While it seems highly relevant to utilize the potential of introspection through mindfulness practice to stimulate the development of competencies that have their focus on these processes, not all competencies seem equally responsive to this approach. For the design of teaching and learning settings in HESC, it therefore seems advisable to combine different teaching approaches and introduce mindfulness practices where they can best unfold their potential for the development of KCSCs.

6. Limitations

The research design used in this study comes with a number of limitations, of which five will be addressed in further detail. First, in the analysis was that both KCSCs and introspection are complex and latent constructs that are not directly observable and therefore not readily accessible to the interviewees. The focus of this study on the intersection of the two made the analysis complex and challenging. In particular, it proved difficult to clearly identify introspective statements (reflection) in the material, also because the interview or diary guidelines of the original studies were not explicitly geared to this. Two independent student research assistant teams conducted the coding, each of which was familiar with one coding scheme and applied it to the material in both studies under the guidance of a senior researcher. While this seemed well justified in terms of specialization, it would be desirable for future studies to control the inter-rater reliability even more closely at the level of the coding teams in order to reduce corresponding disturbing influences.

Second, the types of data collected were very different. While study 1 used data collected in a rather formalized social context (interview), study 2 analyzed highly personal diary entries prepared autonomously by the students in a setting of their choice. It cannot be excluded that the setting had an influence on the data. For example, it is possible that the temporal structure (sequence of question and answer) and the social situation (social desirability, openness) of the interview format had a different

effect on the quality of the reflections generated in the situation than was the case when the diary entry was written.

Third, the participants in study 1 registered for mindfulness training offered by the university's student recreational service, while the students in study 2 voluntarily opted for credit-relevant seminars in sustainability science. In this respect, different self-selection effects cannot be ruled out. Moreover, the study is strongly based on self-disclosure. For future studies, a combination with further survey approaches (e.g. neuroscientific) would be desirable.

Fourth, both studies have an important shortcoming shared with the majority of current MBI studies (van Dam et al., 2018). Both studies investigated MBIs that consisted of various elements encouraging participants to introspect, such as writing diaries, dialogues on meditation experiences and verbal input from the teachers. Although the authors intended to distinguish effects of the mindfulness practice from those prompted by other intervention elements based on the participants' reports, it is likely that the different elements reciprocally influence each other, shape the way participants make sense of singular experiences and intensify reflexive processes. In other words, the effects described above cannot be attributed to the mindfulness practice alone, but need to be seen as a result of the MBI as a whole. In line with general recommendations for mindfulness research (ibid.), future studies might isolate and clarify the effectiveness of different elements.

Fifth, the use of a competence approach as a reference point for the inquiry also comes along with limitations. The authors acknowledge that competence-based approaches as a form of outcomes-based education have been criticized for being managerial, technical-reductionist, and behavioristic in nature (Hyland, 1997). This critique is also reflected by scholars arguing for educational, indeterministic and open approaches to defining the objectives of learning in (H)ESD. The authors concur with the rejection of narrowly defined behavioral or cognitive outcomes as expressed in this vein. While the framework of KCSC used in this study can be seen to stand in the tradition of outcomes-based education, it provides a middle ground, as it does not foreclose outcomes on a very specific level, but rather identifies domains of learning that is empowering and conducive to sustainable change. However, an implication and limitation of using this framework is that part of the analysis was based on a deductive coding scheme that confined the scope of new phenomena to arise. At the same time, the openness of the KCSC framework (compared to more rigidly operationalized competence frameworks) and its neglect of behavioral outcomes (sustainable consumption behavior) do not allow to derive any conclusions about the effectiveness of the learning with regard to actual behavior change.

7. Conclusion

In this paper, the authors explored the intersection of introspection and KCSCs and the potential of mindfulness training as a practice that has proven effective in cultivating the ability to introspect for learning processes in HESC. The research was based on two studies, the first looking at a consumer-focused MBI and the second investigating two university seminars in which mindfulness practice was

integrated. The findings from both studies show a clear intersection between both constructs and suggest that mindfulness training can indeed contribute to the acquisition of key competencies through cultivating learners' ability to introspect. The sequential coding procedure used in this study revealed several intersections between both constructs. These intersections provide detailed insights into how frequently different aspects of introspection overlap with different aspects of the competence framework. The frequency and distribution of these overlaps suggests that the development of the ability to introspect and the acquisition of key competencies are related. The most obvious relations to introspection exist for the competencies to reflect individual needs and cultural orientations (KCSC 1) and to communicate sustainable consumption (KCSC 4). At the same time, the lack of overlaps for certain aspects of both concepts suggests that the relation between introspection and competencies might differ significantly, depending on the respective aspect. For example, the analysis yielded only few relations between introspection and four KCSCs (Action, Role-Taking, Knowledge, Vision), and none between the competence to use ICT interactively and introspection. Based on this explorative findings, of this explorative study, a possible contribution of future research will be to deepen the understanding of how the development of introspective skills relates to specific competences, or dispositions, using also more generic or other domain-specific competence frameworks. A further avenue for future research is to investigate the extent to which the relationships found in this study are causally linked or can be developed independently of each other. Finally, an important finding of this study is that while the ability to observe inner states and processes seems to strongly resonate with some part of some key competencies, their development equally requires individuals to go beyond the observation of personal experience, and to engage into more analytical and abstract reflection processes. Therefore, the authors suggest combining a systematic self-observation as offered in mindfulness training with a methodically controlled analysis and theoretically enriched reflection of the personal experience to design learning settings in HESC that provide rich opportunities to stimulate and nurture the development of KCSCs.

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9.8. Cross-fertilizing qualitative perspectives on mindfulness training. An empirical comparison of four methodical approaches.

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Abstract

Objectives: Qualitative methods come along with specific methodological backgrounds and related empirical strengths and weaknesses. Research is lacking addressing the question of what it precisely means to study mindfulness practices from a particular methodological point of view. The aim of this paper is to shed light on what qualities of mindfulness different qualitative methods can elucidate.

Methods: Based on interviews stemming from participants of a consumer-focused mindfulness training (BiNKA), we undertook a comparison of four different analyses, namely Content Analysis (CA), Grounded Theory (GT), Interpretative-Phenomenological Analysis (IPA) and Discourse Analysis (DA).

Results: Independently applying the four methods on our data material led to the following findings: CA demonstrated that the training had effects on self-awareness, well-being and the development of ethical qualities and influenced pre-consumptive stages of participants; GT revealed the complex set of conditions determining whether and how the mindfulness training influenced the attendees; IPA highlighted the subjectivity of the mindfulness experience, suggesting that (1) different training elements have varying effects on participants, and (2) it is often not the meditation practice, but other course elements that cause the effects experienced by the attendees; DA demonstrated that the course experience was influenced by subjective theories held by the participants. In particular, they showed typical strategies of rationalizing their consumption.

Conclusion: A pluralistic qualitative research assists in identifying blind spots and limitations of a single method, increases the self-reflexivity, and helps to arrive at a more comprehensive understanding of mindfulness practice or other processes of covert lived experience.

Key words: mindfulness, qualitative, pluralistic qualitative research, reflexive methodology, sustainable consumption

1. Introduction

In mindfulness research and practice, mindfulness-based interventions (MBIs) represent a field of tremendous interest that continues to receive growing attention. MBIs constitute a class of training programs in which the participant is asked to bring “awareness to current experience – observing and

attending to the changing field of thoughts, emotions and sensations from moment to moment – by regulating the focus of attention" (Bishop et al. 2004, p. 232). Recent research has investigated the effects of MBIs in areas such as medicine (Didonna 2009), psychotherapy (Germer et al. 2016), education (Schonert-Reichl and Roeser 2016), economics (Ie et al. 2014), sports (Birrer et al. 2012), and even the military (Jha et al. 2015). Additionally, dozens of systematic literature reviews and meta-analyses have summarized an overwhelming amount of individual studies, mostly confirming positive effects of mindfulness trainings on many different aspects, including health and well-being (Black and Slavich 2016; Goyal et al. 2014), emotion regulation (Hill and Updegraff 2012), attention and cognitive performance (Eberth and Sedlmeier 2012; Zenner et al. 2014), compassion and prosocial behaviors (Luberto et al. 2017), or sports performance (Bühlmayer et al. 2017).

In view of this attention, it is not surprising that MBIs have also become subject to critical appraisal (e.g. Van Dam et al. 2018). Quantitative measurements of mindfulness – constituting the majority of mindfulness-related publications (Van Dam et al. 2018) – have particularly come under attack by different scholars. For example, a meta-study by Goyal et al. (2014) identified several methodological flaws common to quantitative mindfulness-related research, including research biases, a lack of active reference groups, and insufficient attention to placebo. More generally, it is argued that the existing quantitative instruments (see for example Bergomi et al. 2013) are barely appropriate to do justice to its "multidimensional nature" (Grossman 2008, p. 407). They instead reduce mindfulness to specific qualities that may be associated with it, but which may also be attributed to other states and/or traits and do not capture the phenomenon, e.g. an ability to maintain attention or be emotionally nonreactive. In regard to its broader meaning, "clear objective and observable [e.g. behavioral, physiological or emotional] criteria of mindfulness are unavailable" (Grossman 2008, p. 407), implying that mindfulness practice is experienced very differently from one person to another. Hence making a quantitative, standardized approach to the phenomenon is a difficult enterprise. Grossman (2019) additionally recently showed the substantial degree to which quantitative investigations of mindfulness are fundamentally affected by the subjective influences and biases they are assumed to mitigate. As a consequence, proposals have been made to intensify the qualitative inquiry of MBIs (Garland and Gaylord 2009; Grossman 2008 & 2019).

In terms of the number and diversity of qualitative studies published, it seems that this suggestion has been taken increasingly seriously. Searching for "mindfulness AND qualitative", the SCOPUS data base alone shows an increase of annual publications from 14 in 2008 to 133 in 2018. Applying different qualitative methods such as Grounded Theory (GT), Content Analysis (CA) or Interpretative-Phenomenological Analysis (IPA), researchers have aimed to deepen the understanding of MBIs' impacts and mechanisms in a broad range of fields including psychotherapeutic settings (Williams et al. 2011), prisons (Himmelstein et al. 2012), breast cancer treatments (Schellekens et al. 2016), education (Bannirchelvam et al. 2017), the workplace (Hugh-Jones et al. 2017), or childbirth (Malis et al. 2017). Similar to meta-analyses in the field of quantitative research, first studies are now also available for qualitative mindfulness research, which attempt to synthesize the results of various studies (e.g. by using meta-ethnography, Malpass et al. 2011).

Alongside the growing interest to study MBIs from a qualitative angle, the question emerges whether a qualitative approach is, per se, sufficient to overcome the methodological difficulties related to the inquiry of the phenomenon. There are at least three reasons for doubt: Firstly, while it appears obvious that qualitative approaches are suited better for reconstructing the *individual* experiences of mindfulness practice than quantitative research, they are by no means immune to error and bias (Norris 1997). To the contrary, qualitative research is prone to biases at all stages of the research process, beginning with topic selection, to data collection and analysis, and to the final step of publishing (Mehra 2002; Petticrew et al. 2008; Silverman 2000). In particular, different methodologies come along with specific distorting tendencies (e.g. Smith & Osborn 2008) and bring potential methodological perspective biases (Deady 2011), so that there is no good reason to assume that the qualitative investigation of MBIs can be exempt from these tendencies. The second reason is that research on mindfulness is particularly prone to such biases. As mentioned above, the demand for qualitative research on mindfulness is grounded in the intention to reconstruct the individual experience of the practice. Methodologies inspired by phenomenology like IPA seem to be perfectly suited for such an endeavor, as they explicitly aim at making sense of the subjectively lived experiences of research participants by interpreting their interpretations of them. However, Grossman (2008), for example, emphasized the importance of personal experience with mindfulness practices as a prerequisite for studying the phenomenon. Although Grossman referred to quantitative research, it appears no less likely that a lack of personal experience with mindfulness practices equally represents an obstacle in reconstructing the lived experience of mindfulness practitioners. At the same time, strong personal engagement in the practice or underlying research interests can also restrict researchers' objectivity toward the phenomenon (Chavez 2008), and findings on positive publication bias within mindfulness literature (Nowogrodzki 2016) provide strong evidence that this is commonly the case. Thirdly, it must be highlighted that the application of a qualitative research method, albeit allowing for a more comprehensive look at the object under investigation than is generally possible from a quantitative angle, still represents a particular perspective on this object. Such perspective, usually gained from observing small samples, entails procedures, assumptions and theoretical lenses that make certain aspects visible while others remain opaque (Morse and Chung 2003). In sum, qualitative approaches toward mindfulness practices require a critical and differentiated discussion in the same way as is the case for quantitative studies (see Grossman 2019).

This background notwithstanding, methodological reflection remains scarce in current qualitative mindfulness research. In fact, some publications do not even locate themselves within a methodological perspective (see Malpass et al. 2011 for examples). And even though most studies do (sometimes only roughly) indicate their research methodology, their explanation remains mostly limited to general characteristics of qualitative research. For example, they argue that it is well suited for studying new areas of inquiry (Allan et al. 2009, p. 414), can provide empirical insights in order to develop the theoretical understanding of the phenomenon (Allan et al. 2009, p. 414) and allows "to explore […] experience in as open-ended a manner as possible" (Christopher et al. 2011, p. 322). Similarly, explanations for selecting a specific method are barely provided along the actual topic of mindfulness, instead depicting for example IPA and GT as approaches "for [a] more open exploration of participants experience" and CA as a "more focused and theory driven approach" (Sweeney 2016). The application of GT is mostly justified by its theory-building potential (Kerr et al. 2011), while IPA

is deemed to make visible "the construction and meaningfulness of experiences" (Williams et al. 2011, p. 382). Reflexive accounts analogously remain on a rather general level, problematizing the influence of subjective perspectives and presumptions (Haydicky et al. 2017) or the degree of engagement in the research procedure (Hugh-Jones et al. 2017) on data analysis. All these papers have in common that they lack an inquiry into what it precisely means to study mindfulness practices and their effects in a concrete field of application from a specific methodological point of view. To our knowledge, no such empirical investigation of qualitative methodological analyses has yet been undertaken - despite the above-mentioned insight into the need for stronger methodological reflections.

This article sets out to contribute to this agenda. It uses data material (in-depth interviews and practice diaries) from a study of a consumption-specific MBI (BiNKA-training) carried out between 2015 and 2018. The data were made subject to a cross-methodical analysis in order to systematically compare strengths and shortcomings of different methods when looking at the effects of mindfulness training.

In total, the comparative analysis involved four qualitative approaches: in addition to the common Qualitative Content Analysis (CA), Grounded Theory (GT) and Interpretative-Phenomenological Analysis (IPA), we also included a Discourse Analysis (DA), as this method carries a specifically relevant, yet so far almost entirely neglected, potential for inquiring mindfulness practice. In what follows, we will illustrate how using a pluralistic qualitative method approach can cross-fertilize and overcome limitations of the application of single qualitative methods when studying mindfulness in general and the nexus between mindfulness and sustainable consumption in particular. We do that in the sense of a reflexive methodology (Alvesson and Sköldberg 2017), hoping to contribute to "a consideration of the perceptual, cognitive, theoretical, linguistic, (inter)textual, political and cultural circumstances that form the backdrop to – as well as impregnate – the interpretation" (p. 11) of mindfulness-related inquiry.

2. Method

2.1. Participants

The MBI was delivered to two target groups, namely university students and employees of three small and medium-sized enterprises that declared their participation in the research project beforehand (one engineering office, one market research institute, one university). In total, six training groups were implemented for each target group, resulting in a total number of 12 training groups with a maximum group size of 12 participants. The training was advertised to university students at the three universities in Berlin by means of a universities-wide website connected to sports program and health promotion offerings. Employees were informed via email of the possibility to attend the mindfulness training within their enterprise. In accordance with ethical guidelines of the German Psychology Association, participation was completely voluntary, reimbursement was in the form of a remitted course fee, and personal data of different measurement times was linked via an anonymous personal code, so inferences to individual persons were made impossible. Individuals were excluded from

participation when they showed serious indications of psychological difficulties, based upon a brief individual screening performed by the mindfulness trainer.

Out of n = 137 participants, 25 were selected after the course-attendance for semi-structured interviews, and 24 were included in the analysis. (The interview guidelines can be found at http://achtsamkeit-und-konsum.de/wp-content/uploads/2015/09/Interviewleitfaden_final.pdf.). While 13 participants of the sample were chosen randomly, the other 12 were selected on the basis of most extremes in values of pre-to post-intervention changes scores of the theoretically relevant quantitative scales (e.g. those who showed greatest *vs.* least improvement on scores putatively indexing facets of mindfulness, see below).

2.2. Procedure

Between 2015 and 2018, we carried out an intervention study called BiNKA (German acronym for "education for sustainable consumption through mindfulness training. For more information about the research project, see http://mindfulness-and-consumption.de/). The main assumption of the research project was that mindfulness training might be a promising way for fostering more sustainable consumption behavior. This assumption was supported by evidence from a systematic literature review of existing empirical, but almost exclusively, correlational, cross-sectional, studies on the nexus of mindfulness and sustainable consumption (Fischer et al. 2017). In detail, the review outlines four mechanisms according to which practicing mindfulness may possibly positively affect individuals' way of consuming, namely through 1) enhancing concordance between attitudes and behaviors, 2) increasing well-being related to decreasing the extent of materialistic orientation, 3) fostering compassion and pro-social behavior and 4) disrupting unsustainable habitual behavior. However, the stocktaking also revealed that empirical investigations of causal links between MBIs and consumer behavior remain practically non-existent (Fischer et al. 2017).

Given the environmental urge to transform individual consumer practices and mindfulness' potential to contribute to this aim, the research and development of the BiNKA project set out empirically to explore whether mindfulness training can, in fact, increase sustainable consumption in individuals. The main objective of the project was to provide a comprehensive empirical investigation of the relationship between mindfulness and sustainable consumption behavior, specifically whether consumption behaviors might be influenced by means of mindfulness training. For that purpose, a consumption-specific MBI was developed (BiNKA training), and a portion of curriculum of the well-established MBSR (mindfulness-based stress reduction) program developed by Jon Kabat-Zinn (1991) was used and modified as a basis for the training. The MBSR program comprises eight weekly group sessions, one additional half-day session after week six ("day of mindfulness") and, importantly, daily individual practice. This program consists of a variety of elements, among them formal meditation practice, group discussions and reflections, insight talks and bodily exercises, including mindful yoga. In addition to modified MBSR elements, the BiNKA training was supplemented with specific consumer education activities embedded in a framework of mindful awareness, focusing on nutrition and clothing as two key domains of sustainable consumption (Geiger et al. 2017; see Stanszus et al.

2017 for a detailed account of the training and its development, as well as Fritzsche et al. 2018 for a practical toolkit illustrating exemplary exercises).

Interviews with course participants were conducted in August and November 2016 by three senior researchers not involved in teaching the intervention, each lasting between 35 and 70 minutes. All interviews were audiotaped and transcribed verbatim. Before the start of each interview, participants were asked to consent to audiotaping the interview and were reminded of their voluntary attendance, as well as their right to refuse answers or stop the interview at any time. The interview guidelines consisted of two parts. The first part of the interview invited open-ended responses about participants` general experiences in the MBI and their practices at home that they deemed important to elaborate upon ("What did you experience in the training and with your practice at home?"). They were encouraged by the interviewer by means of follow-up questions to deviate into whichever direction they considered important to describe. In the second part, more detailed questions guided the interview, such as questions reflecting a general description of their eating and shopping food routines and possible changes to those behaviors over the last weeks ("Would you please elaborate on your general behavior regarding nutrition?"; "Did you experience any changes in relation to your general behavior regarding nutrition in the past weeks?"), or their understanding of consumption and sustainable consumption ("What exactly is consumption to you?", "How would you describe sustainable consumption?"). Interviewees were further asked if and how they perceived themselves more mindful, and what exactly they understood by their experience of mindfulness ("In your opinion, did you develop more 'mindfulness'? How would you know that/ how do you experience that?"). At the conclusion, they were encouraged to ask any open questions and were also informed about the state of the study and the next steps of analysis. In addition to the interviews, course participants wrote diaries reporting and reflecting on their daily mindfulness practice experiences as well as their informal mindfulness practice "homework." With the consent of participants, the dairies were collected and included into the analysis. All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

2.3. Measures

The BiNKA study was predicated upon a Mixed-Methods design. The quantitative part aimed at empirically testing the aforementioned mechanisms of mindfulness on participants' consumer behavior. For this purpose, all participants were surveyed with a quantitative questionnaire shortly before (pre) and shortly after (post) the intervention, as well as six months after completion of the training (follow-up). The qualitative inquiry was integrated in the research project for four reasons: Firstly, quantitative measures of mindfulness and empirical mindfulness investigations have been recently criticized and seen as insufficient sources of knowledge (see introduction). Therefore, enriching the quantitative data with in-depth interviews and course attendants' diaries could engender a broader picture of the training effects. Secondly, a qualitative approach might allow a detailed reconstruction of subjective experiences associated with participating in a specific consumer-focused mindfulness intervention, as well as provide insights into the relation between mindfulness and

consumption that go beyond pre-determined hypotheses derived from the systematic literature review (Fischer et al. 2017). Thirdly, the relation between mindfulness and (sustainable) consumption behavior has rarely been investigated in a longitudinal study of mindfulness training. An explorative approach toward this relation was hence also needed, given the pioneering character of the BiNKA study. Fourthly, we thought that a qualitative perspective could also provide a somewhat more critical glance at mindfulness training, a viewpoint that is often neglected given the current, perhaps somewhat exaggerated, enthusiasm about the phenomenon (van Dam et al. 2018).

As mentioned above, the research team considered four well-established methods for doing justice to these intentions, namely CA, IPA, GT and discourse analysis (after Keller 2011). CA is a systematic, rule guided qualitative text analysis, which is oriented towards the methodological quality criteria of the quantitative research paradigm, but at the same time integrates the openness of qualitative research methods (Mayring 2000). CA has a number of advantages that suggest it as the most appropriate method for triangulating qualitative and quantitative findings. The primary advantage of CA appeared to be that it allows to identify course effects and to translate the already existing hypotheses on the mindfulness-consumption nexus and use them in the analytical process (e.g. Mayring et al. 2007). However, its descriptive nature would necessarily restrict both the scope for interpreting the subjective experiences of training attendees, as well as the discovery of previously unconsidered relations between the mindfulness training and individuals' consumer behavior. IPA is a qualitative method specifically tailored to make sense of peoples' lived subjective experience (e.g. mindfulness practice) and the way they personally attribute meaning to this experience (Smith and Osborn 2008). A potential drawback of IPA is that it might impede the identification of cognitive biases and socio-structural patterns expressed by individuals when talking about their consumer behavior (Frank 2017; Herbrik and Kanter 2016). GT is a method aiming at generating new hypotheses about a given phenomenon based on a systematic gathering and analysis of data (Strauss and Corbin 1997). GT was thought to allow us to combine the reconstruction of subjective experience and the discovery of supra-individual patterns concerning the mindfulness-consumption nexus, yet the intention to link it to existing hypotheses or quantitative findings on course effects might restrict or even bias its research outcome. DA, finally, appeared to be promising for the critical perspective on our MBI. DAs construe language as social interaction and are concerned with the social contexts in which discourse is embedded. Therefore, instead of interpreting participants' reports on their mindfulness experience as testimonies of the reconstruction of their personal reality, DA could shed light on the larger cultural framework shaping course attendees' prior knowledge about and expectations toward mindfulness practice.

In sum, choosing a single qualitative research methodology without *a priori* curtailing the research objectives turned out to be challenging. Given that systematic reflections on the potentials and limitations of different qualitative methodologies on MBIs, in general, and its relation to consumer behavior, in particular, were absent, the research team could not rely on previous empirical experiences on the matter. Inspired by similar works from marketing (Goulding 2005) and sustainability research (Nightingale 2016), it was therefore decided to transform the search for an appropriate qualitative method into a research question on its own. A pluralistic qualitative research (Frost 2011) was chosen for the qualitative research study that allowed to compare the application of different qualitative methodologies when investigating the nexus between mindfulness training and

consumer behavior and provide an empirical answer to the question of what qualities of mindfulness qualitative studies elucidate, as well as how these qualities of mindfulness may relate to aspects of sustainable consumption.

3. Data analyses

The different methods were each applied to the raw data. CA, GT and IPA were mainly conducted by the qualitative core research team, consisting of two senior research fellows with multiple years of experience in applying CA and GT and also some experience with IPA. Their provisional results were regularly made subject to larger interpretation meetings that included other members of the research team. Also, upon numerous occasions external researchers specialized in qualitative methods participated. During these meetings, the two senior research fellows presented their analytical approaches based on the data material. In case of mutual agreement, these approaches were further pursued, and otherwise either revised or rejected. In addition, Pascal Frank and Daniel Fischer ran a research laboratory at Leuphana University in which undergraduate students applied CA and IPA on BiNKA interviews in order to obtain a more independent perspective on the matter. The students' analyses provided an additional comparative framework in order to further validate our findings. DA was applied as an undergraduate thesis project supervised by the qualitative research team.

Data analysis started in January 2017 with the development of the coding scheme for CA. While the student assistants completed the coding process, the senior researchers sequentially undertook the first two steps of GT and IPA, regularly complemented by the aforementioned interpretation meetings. We completed CA in September 2018, before coming back to the last step of GT and IPA (again undertaken in sequential order). While we intended to apply each method as 'purely' as possible, we could not rule out cross-methodical influences.

3.1. Content analysis

For the qualitative content analysis, we followed the procedure suggested by Kuckartz (2014). We used semi-open coding to guide the analysis of the material through the theoretical considerations of the overall project on the one hand, and to maintain openness to phenomena occurring in the material, on the other hand. A deductive coding scheme was developed to reconstruct the subjective experience of participating in the MBI. The quantitative hypotheses, as well as the interview guideline and the respective theoretical foundations, were used as a grid for developing a first version of the deductive code system, which was tested against the material. In addition, inductive categories were developed alongside the coding process in order to account for the likely appearance of unanticipated effects. Subcategories were subsequently elaborated within an iterative coding and refining process until 25% of the data was unambiguously and completely categorized in accordance with the scheme. Two student assistants coded the remaining data material. Rooted in the codings, two senior researchers wrote individual case summaries, synthesizing and abstracting the central effects of the intervention and its influence on participants' consumer behaviors.

3.2. Grounded theory

We adapted Strauss and Corbin's (1997) understanding of GT to our study's context. The previously mentioned logistical and broader methodological considerations did not allow for the iterative loop between data collection and analysis otherwise typical for GT research. However, the quantitatively grounded extreme-case selection aimed at a diversification of interviewees in terms of course effects. As suggested by Strauss and Corbin, data analysis was undertaken in an iterative three-step coding process. Firstly, each interview and the related diary were subject to an open-coding process, and categories, sub-categories, as well as early overall hypotheses, were formulated. Secondly, the axial-coding step was undertaken by comparing and applying generated categories and hypotheses to other interviews. In this step, special attention was given to the systematic search for opposing categories and contrary evidence ('flip-flop technique', Corbin and Strauss 2008) within data material. Provisional results of these processes were regularly discussed within the research team in order to include a variety of theoretical perspectives and avoid hasty conclusions, as recommended by Strauss and Corbin (1997). Thirdly, during selective coding, most relevant codes were identified and synthesized into main themes, eventually leading to an overall theory answering the BiNKA project's key research questions.

3.3. Interpretative phenomenological analysis

The IPA was guided by two main interests, namely to find out (1) how participants experienced the BiNKA training and (2) how (if at all) they experienced the relationship between the training and their consumption practices. We applied the IPA procedure as suggested by Pietkiewicz and Smith (2012), consisting of three steps: Firstly, two independent researchers read (and listened to) the interview material several times and took notes about emerging observations and reflections on the data. Secondly, recurring notes were transformed into themes, related to the research questions. Thirdly, the senior researchers identified relationships between the different themes and then exchanged upon their findings. They developed clusters based on clearly identified and agreed upon themes in order to work out overarching patterns within the data.

3.4. Discourse analysis

DA was conducted after the Sociology of Knowledge Approach to Discourse (SKAD) (Keller 2018). By means of this research perspective, we aimed at investigating prevailing social perceptions and interpretation patterns in participants´ discourse around mindfulness, and whether these patterns effected the course experience as well as the experienced relation to the participants' consumer behaviour. As the SKAD analysis does not provide a cut-and-dry method, but we adapted the approach to the material as follows: Firstly, we identified those text passages in the interview material in which the respondents explicitly spoke about their understanding of mindfulness and reported on their

consumer behaviour. This provided the base to identify patterns of interpretation, perceptions and collective social knowledge within the scope of mindfulness and sustainable consumption. Secondly, five interviews that represented the range of such patterns were selected for in-depth analysis. These were systematically compared to experts' statements and opinions on the topic drawn from the literature in order to connect them to the prevailing ways people think of and speak about mindfulness and sustainable consumption. We then proceeded to examine the compiled ideas regarding mindfulness in the context of the intervention, to investigate if and how these ideas influenced the attendees' experience in the training.

4. Results

4.1. Content analysis

Applying CA to the interview material, we were interested in the effects interviewees reported as a result of their participation in the consumption-specific mindfulness training. In accord with the aforementioned procedure, we abstracted four main categories from the codings: (1) consumption behavior; (2) pre-behavioral dispositions of consumption behavior; (3) mindfulness-related effects with the three subcategories (a) ethical qualities, (b) increased awareness, and (c) well-being; and (4) no and potentially aversive effects.

In the first effect category, a decrease in the interviewees' impulses to consume was a main theme, e.g. for meat and sugar:

It's more of a mind thing, that I actually do like to eat meat, that I think it's tasty, but I am often forbidding myself to eat it. Especially non-sustainably sourced meat. And in the [pizza with meat] situation [during the training], I realized, I don't WANT that. I had this feeling of disgust. IGSTUX

This often went alongside an increase in perceived self-efficacy and, in one case, the development of sustainable consumption behavior in a previously unreflected area, namely organic food consumption. The latter respondent could, however, not trace the development back to a specific practice, but spoke about the positive influence of the whole of the training:

I didn´t think much of organic products beforehand [...] I am a vegan, but hmm, I thought it was a rip-off, because it is always much more expensive and basically, it's the same ingredients etc." "But, hmm, lately, I have been thinking, ok, I will spend the 30 cents extra and buy the organic product instead. KG3STU3

In total, four out of 25 interviewees mentioned such behavioral changes as a consequence of the training.

In the second category, pre-behavioral dispositions like awareness, attitudes or intentions are considered a prerequisite for changes of habitually unsustainable consumption patterns (e.g. Klöckner

and Matthies 2004). Eight of the 25 interviewees reported effects on these pre-behavioral dispositions due to course participation. More precisely, they mentioned an increased importance of one's own social and ecological values, a strengthened intention to put those values into action as well as an increase in appreciation and gratefulness for consumption goods.

With mindful eating, I experience the taste of every single bite with more awareness and greater appreciation, because I reflect on the origin of the products. When I then shop mindfully, I pay more heed to sustainable, organic, fair trade products. IG1STU10

The third category, mindfulness-related effects, entails all effects that occurred in response to the development of mindfulness, some of which are potentially beneficial for the development of sustainable consumption. They do not, however, show an explicit relation to (changes in) sustainable consumption. From 25 participants, 23 reported changes in three main themes. Firstly, an increased well-being through a better capability of dealing with stress and negative emotions and a more relaxed handling of difficult situations were elaborated upon:

I had the feeling that [through the practice] a lot of things did not bother me as much anymore, I could stay connected with myself and better observe what is REALLY happening. IG1STU2

The second theme describes the more general development of awareness for inner thoughts and processes. Many of those realized patterns had a direct link to consumption (especially food) or were related to reoccurring behavior such as habitual reactions to stressful encounters at work or dealing with emotional turmoil. Decreased reactivity, e.g. to upcoming negative emotions, was also reported as a likely consequence of increased awareness:

To pay more attention to myself. To consider my behavior more. This conscious dealing with emotions. In situations with both positive and negative emotions. I find a little more joy in the positive moments and can handle the negative ones better. IG2AN11

The development of so-called 'ethical virtues' (e.g. Grossman 2015) or ethical qualities, was the third theme in this category of codings, elaborated upon by half of the interviewees. Descriptions included the evolution of equanimity in relation to oneself and others, increase in empathy, a feeling of enhanced connection to nature and fellow human beings, and increases in compassion to others and oneself:

I am usually compassionate with my fellow humans (e.g. leaving my place in the bus for elderly people and helping them on the street), but mindfulness makes those processes conscious for me and strengthens the feeling of goodwill towards strangers. IG1STU10.

Two of the 25 participants reported to have experienced no effects from the training at all. Furthermore, a few interviewees spoke about a decrease in bad conscience when consuming unsustainably, which might result in more unsustainable consumption decisions and create adverse effects. Two course attendees also reported a higher focus on individual needs, which might also

result, for example, in increased consumption or switching to less sustainable choices, e.g. taking the car instead of the train, or buying less organic food:

In that way, the training has […] opened my eyes […], as it helped me, to accept more and to say to myself: Ok. It is like that, because, maybe there is not enough money right now, to buy organic food. IG1STU2

To summarize: Despite few effects on the actual consumption behavior, the content analysis was able to shed light on the manifold perceived influences of the training on pre-behavioral dispositions like awareness, attitudes and intentions. Furthermore, strong effects of increased awareness about habitual behavioural and emotional patterns and development of ethical qualities were found, relevant pre-conditions for being able to change behavior consciously and consistently. The analysis also showed the strong variety of strength of effects in participants, yet without offering substantial answers as to why the effects were so different. It became clear, that more detailed and elaborate qualitative methods would be needed to provide these answers.

4.2. Grounded theory

The application of GT allowed inquiry more generally into what happened throughout the BiNKA training. This inquiry included but was not limited to experienced course effects. The first coding cycle led to 76 codes. These were clustered into five overall descriptive categories: (i) course effects, (ii) factors determining/influencing course effects, (iii) experiencing the relation between mindfulness and consumption, (iv) relating to the practice and (v) talking about one's consumer behavior. Each category comprised a series of sub-categories. For example: 'course effects' summarized the sub-categories 'positive', standing for actually reported effects that were clearly explained by course participation, 'negative' representing effects hypothesized in the literature that we could actually not find and (c) potentially adverse effects regarding the promotion of sustainable consumption. Positive effects were further differentiated according to general or consumption-related effects.

When comparing the different codes within the categories, it quickly became apparent that the way participants perceived the BiNKA training as well as its effects on their consumer behavior varied strongly from one attendee to another. While some participants clearly saw a relation between the training and consumption and stated either changes of their actual consumer behavior or preliminary stages of the latter (awareness, attitudes, intention), others could not make such a connection and did not report any effects regarding their individual consumption. On the one hand, almost all participants report that the training led to an increased awareness of their inner states and processes (e.g. emotions, thoughts, needs) and an increased attention toward the social and natural environment. Moreover, the majority of course attendees mentioned positive effects on their well-being, often related to improved coping mechanisms with stress and the cultivation of ethical qualities, such as compassion, patience, openness or equanimity. On the other hand, reported positive effects were often observed in singular situations or transiently occurred only directly after the training; hence they did not necessarily show lasting changes. In addition, we also found some course effects that could be considered as detrimental

to promoting sustainable consumption. For example, some participants reported feeling more relaxed and less negative about consuming in opposition to their values, thereby reducing the affective motivation to consume in a sustainable way.

Overall, these findings led to the hypothesis that the effects of a consumer-focused mindfulness training are strongly influenced by factors independent of the actual practice. Within the data material, we could detect many of these factors, including the relation with the teacher and the group, previous experience with the practice, the time and duration of the training (i.e. 'exposure' to the intervention) and general living conditions of the participants. Variations in subjective theories (Groeben et al. 1988) of themselves, meditation practice, consumption and sustainability turned out to be of particular relevance for understanding course effects and judgment of the training. For example, some participants believed the practice of meditation should switch off thinking and lead to a feeling of relaxation. However, when they realized in practice that they were still thinking and becoming agitated, this led to disappointment and the impression that they did not have the ability to meditate:

I had the feeling that it didn't work properly. I mean that my mind immediately started wandering. Sometimes I had the feeling that my mind jumped from one topic to another every few seconds […]. I thought that it should or must work in a certain manner and observed that it didn't work this way for me. IG1STU10

Similar effects were observed with regard to the participants' consumer behavior. Participants who considered their consumer behavior to be morally problematic, but thought to have ignored its impacts, tended to report increased negative emotions due to the expanded consciousness about their attitude-behavior gap:

Interviewer (Int): Did you recognize any changes with regard to your eating habits or your purchasing behavior with regard to clothes during the last weeks? Participant (P): Yes, I think so. Especially regarding clothes I started to reflect more. And I recognize that I have a guilty conscience more often. IG2AN12

In contrast, people stating that one should not feel bad when occasionally consuming against their attitudes yet had experienced feelings of guilt experienced reduced negative emotions due to course participation:

The course participation probably gave me more serenity in this matter. Because I do tend to have a guilty conscience when I'm aware that I can't act in accordance with my own moral standards. In this regard […], the course helped me to accept that. IG1STU2

In sum, GT analysis corroborated the findings of CA that the BiNKA training increased awareness of inner states and processes (e.g. emotions, thoughts, needs) and led to an increased attention toward the social and natural environment. However, how people interpreted and made use of this awareness varied significantly and seemed to be influenced by a multitude of factors. In many cases, they stayed in line with and stabilized preexisting subjective theories, leaving the impression that the BiNKA

participants tended to interpret the course experience in a way such that it confirmed the expectations they held of it in the first place.

4.3. Interpretative phenomenological analysis

IPA was applied to find out how participants experienced the BiNKA training and how they interpreted this experience. Given the training's focus on consumption, a special interest was to find out whether participants would relate their training experiences to their consumer behavior.

In terms of general course experience, we clustered the attendees' reports into three categories, namely (a) the immediate experience of the practice, (b) the perceived effects of the BiNKA training, and (c) the perception of factors that influenced the course experience. Overall, most participants described the course attendance as positive, using adjectives as pleasant, relaxing or centering to summarize their experience. They said that the practice helped them in decreasing rumination and becoming more in touch with the current moment by focusing on their breath or bodily sensations, which was perceived as resulting in a more attentive, conscious state of mind. However, the various elements of the training were experienced very differently by different participants. While some felt at ease with the body-scan practice and breath awareness, others stated that they quickly fell asleep when scanning their body or that observation of the breath induced a sense of nervousness.

I felt more comfortable with certain practices than with others. For example, I could much better relate to the breath observation than to the other methods. IG2AN9

Similarly, another practice, Metta meditation (a practice aimed at invoking thoughts and feelings of kindness) was conceived as particularly valuable by some, while others had less positive experiences with it, felt rather overwhelmed or could not relate to the technique at all:
I tried to look at a current conflict of mine. I tried to imagine that person with whom I'm currently having difficulties and then expand my compassion to her. I think I was probably overburdened with that, because it simply didn't work. I couldn't detach myself from my feelings. IG1STU10

Differences between course practice and homework practice were also highlighted by the participants: While practicing at home may allow individuals to adopt exercises to their own specific needs and pace, some participants voiced their struggle to integrate the practices into their daily life. In some occasions, this led to feelings of pressure or guilt when skipping practicing or an inner restlessness when it was, indeed, done, more like a chore than a support:

Then it was always like this: I still have to do that, to check it off somehow. In these cases [...], it felt more like a task I had to do and less like something that was good for me. Something I wanted to do for myself. IG3STU4

The analysis also revealed a variety of factors influencing the course experience that were not directly related to the actual practice, such as the effects of the group constellation or the time of the training.

For example, some attendees reported discomfort in doing the training with colleagues, which hindered the sharing and deepening of their personal experiences.

I sometimes found the questions and techniques problematic in this group constellation. I experienced them as somewhat invasive. IG2AN9

For others, the group turned out to be key for their positive course experience. Those participants felt a strong support by the group, because exchanges with other participants made them realize "they were not alone" with their personal difficulties.

In terms of reported effects, IPA initially revealed an increased awareness of inner states and processes, as well as an increased attention toward the social and natural environment. The majority of course participants stated positive effects on their well-being, often related to improved coping mechanisms with stress and the cultivation of ethical qualities. Nevertheless, they usually described their increased awareness or positive effects on well-being as "*subtle*", "*not life-changing*", even though one interviewee left the course with a "*whole new perspective on life*" (IG3AN8). In sum, the IPA showed that the BiNKA training was experienced very differently from one participant to another, albeit there was a clear tendency toward small positive immediate and lasting effects on awareness, well-being and ethical virtues, such as compassion or a feeling of connection to nature and fellow human beings.

Concerning the experience of the relation between mindfulness and consumption, the majority of course participants were theoretically able to construe a relation between mindfulness and sustainable consumption as hypothesized be a consequence of the BiNKA course (see Stanszus et al. 2017):

I liked the pedagogical approach behind the course. The idea that people develop the insights by themselves, through mindfulness and observation and not through instruction. IG2AN12

However, only in a few cases, participants reported actual effects on their consumer behavior. Some mentioned affective changes related to their consumption (e.g. less appetite for meat) and stated that their increased awareness for inner processes helped them better to connect to their actual needs, resulting in the avoidance of consumer goods they considered problematic (e.g. sugar, meat). In opposition to the BiNKA training's core intention to foster more sustainable consumption choices through stimulating affective-motivational competencies among course attendees, about one third of the participants pointed out the role of the more discursive-intellectual consumer education activities and the group exchange as the important links between the training and consumption:

Int: Do you think that such a consumer-focused mindfulness training can be useful in order to develop a more sustainable consumer behavior? P: Yes, I would think so. Especially when you are together with people that have thought about these topics beforehand […]. Some people might not have reflected upon these topics in advance, but others have done so for a long time already. And then there is an exchange. Int: So you think it's the group exchange? P: Yes, I think it's the group exchange. IG3AN8

Some did not see any relation at all, reasoning, for example, that mindfulness training was rather "self-centered", that is, an internal affair, whereas consumption and sustainability constituted "external issues".

4.4. Discourse analysis

Even if mindfulness is characterized as an open-minded state of pure observation (e.g. Bodhi 2013; Kerr et al. 2011), participants' experiences in an MBI are always framed in a specific sociocultural context. Not only can the personal course experience be influenced by external factors like time (e.g. the season or time of day) or the particular setting in which it occurs, but the larger cultural framework will shape the participants prior knowledge about and expectations toward mindfulness practice. Discourse analysis intends to understand individuals' life experiences and the way they generate meaning from the latter against the backdrop of this cultural framework. For this study, we aimed to reconstruct relevant patterns of speaking about and making sense of mindfulness training. In this respect, we investigated whether - and if so in which way - subjective ideas of mindfulness influenced the experience of the BiNKA training. Furthermore, we also analysed the way people talked about their consumer behaviour and investigated whether the attendees' discourse on consumption somehow differed from prevailing patterns identified in the literature on the topic.

Regarding the first line of inquiry – participants' perception of mindfulness – we found three striking interpretation schemes: The first result was the instrumental perspective on the practice. Many participants attended the course with the intention of benefiting from mindfulness on a personal level, in terms of reducing stress or gaining greater awareness in their daily life by means of the application of short mindfulness exercises. Several attendees, furthermore, stated that they expected to receive hands-on tools that could easily and time effectively be adopted to help them to become more efficient, e.g. in their work life. One participant (KG1AN1) described mindfulness as *"another tool for his toolbox,"* which allows him to get relaxed within a short amount of time and to be ready for action immediately afterwards. Examining this finding in relation to the existing mindfulness literature, it appears that it reflects a general trend, as discussed by experts like Hyland (2017). He claimed this understanding of mindfulness represents a misuse or even abuse of the concept of mindfulness based upon original Buddhist notions of the phenomenon, because it can easily result in a contradiction to the ethical foundation of the Buddhist traditions that include kindness, compassion, detachment of material goods and solidarity (see Grossman 2015). Mindfulness in the described context of instrumentalization is expected to offer specific help and to contribute to the solution of personal problems in an instrumental and technical way. This perception contrasts with the intervention logic of the conducted MBI as self-exploration and a time-consuming, gradual path in which altered perspectives and understandings of self, experience and the world may evolve. An example of the differences between participants' expectations and the actual underlying aims of intervention of the course could be seen by the fact that many attendees reported they did not perform or continue to practice the course exercises, or they disliked them because the expected results did not occur.

Secondly, it became apparent that many participants did not include the practice of meditation in their idea of mindfulness but, in fact, completely separated the two terms from each other. This was expressed by reports that many participants liked the idea of mindfulness but did not feel comfortable about practising meditation. For one attendee mindfulness "is talking about certain topics and raising awareness regarding those topics […] but that has, in my opinion, nothing to do with meditation". IG1AN12.

This separation seems to be a general trend in the Western understanding of mindfulness. As Valerio (2016) demonstrated, mindfulness-related publications are often concerned with the concept of mindfulness without considering any form of meditation practice. This way of understanding represents a change in the perception of what mindfulness is, in contrast to the Buddhist traditions where mindfulness is not seen as truly practiced or cultivated without some kind of meditation practice (Bodhi 2013, p.20), and meditation and mindfulness are, moreover, inextricably interwoven. Understanding meditation and mindfulness as being two separate and distinct practices affected the BiNKA course experience insofar as many participants often did not carry out the meditation exercises, arguing that they did not consider these practices necessary for developing their state of mindfulness.

The third finding was the distinction respondents made between mindfulness and science. Many attendees seemed to struggle with considering mindfulness within a scientific context, which could be seen in statements where mindfulness was described as something 'non-scientific'. Furthermore, many respondents associated mindfulness with notions of "esoterism", "spirituality" and "mysticism", like in the following quote:

In fact, I'm really interested in the topic of mindfulness. But […] it always has a slightly esoteric character, which I really don't like. IG3AN10

This linkage presented a hindrance for some participants in their experience, as their expectations were not fulfilled by the course: They expected it, for example, to "deliver more actual 'facts'" and did not consider mindfulness or meditation as an evidence-based practice (science, in contrast, was considered to epitomize evidence-based knowledge), which kept them from fully engaging in the practices.

Concerning the participants' way to talk about their consumer behaviour, we found three similar discursive patterns to what current research on the topic suggests. Namely, they demonstrated a strong tendency to rationalize apparently unsustainable consumption (e.g. Frank 2017), e.g.:

I would like to consume more sustainably […] I would really prefer if people wouldn't treat animals just as products to satisfy their needs […], but to afford sustainability one has to earn accordingly well. IG2AN9

Furthermore, they neutralize their own behaviours (Chatzidakis et al. 2007) and speak in hypothetical sentences when reflecting their intentions to consume more sustainably (Herbrik and Kanter 2016), e.g.:

Personally, I almost have to accept that I have to buy bad stuff []. Even if I spend more money the T-Shirts are produced in Bangladesh […], okay maybe I would have a choice […], but then the price is for me personally too high […]. Regarding my conscience, I would really love to buy a fair-trade T-Shirt, it's not that I don't care […] but it's almost like as if you were forced to buy the bad stuff. IG1AN12

None of the attendees reported on insights into such psychological mechanisms (as Vago 2014 suggests) or gave evidence of increased self-determination (Levesque and Brown 2007) related to consumption. Discourse on personal consumption thus seemed unaffected by the BiNKA training.

To summarize, the DA of the interview data identified several ideas and perceptions that clearly reflect broader issues that figure centrally in both the academic and public debate and notions about mindfulness. This analysis indicated that many respondents were strongly influenced by such ideas and perceptions during their participation in the BiNKA program. This underlines the potency of contextual factors and discursive patterns that are likely to influence the experience and effects of an MBI. When examining the way people spoke about their consumer behaviour, the training did not seem to have much of an impact on the attendees.

5. Discussion

The aim of this study was to explore the results of different qualitative methods for analyzing interview data in mindfulness research. For this purpose, we investigated how participants of a consumption-specific MBI related their experiences with mindfulness and meditation practice to the thematic context of sustainable consumption. This research interest was motivated by an observed certain lack of reflection within current qualitative research on mindfulness: different qualitative methods have been applied without considering their individual strengths, weaknesses and biases with regard to the research topic. Instead of contributing to overcome the various problems related to qualitative research, an undifferentiated application of qualitative research methodologies thus risks to engender further unclarities and potentially bias and obscure research findings. Analyzing interview data from a consumption-specific MBI (BiNKA training) with four methodical angles (Content Analysis, Grounded Theory, Interpretative-Phenomenological Analysis, Discourse Analysis), this study's intention has been to contribute to closing this gap and laying the foundation for a reflexive methodology (Alvesson and Sköldberg 2017) of qualitative research on mindfulness.

Overall, we found that the application of these four methods did not reveal sharply distinct understandings of the participants' mindfulness experience during this particular program or the experienced relation between mindfulness and consumption. Yet each method did elucidate unique aspects of the research object, not revealed by the other analytic approaches: CA constituted a

relatively easily applicable method that provided a quick overview on the effectiveness of the BiNKA training. It demonstrated that the training had clear effects on perceived awareness, well-being and the development of ethical qualities on the side of the participants and also indicated the potential for influencing their pre-consumptive stages (values, intentions, attitudes, consumption-related awareness). GT added insight into the complex set of conditions determining whether and how the mindfulness training influenced the attendees. IPA, in contrast, highlighted the subjectivity of the mindfulness experience and its link to consumption, suggesting that (1) different training elements had varying effects on participants, and (2) it was often not the meditation practice, as such, which linked the training to consumption, but rather the more general educational components embedded in the training curriculum. Finally, DA demonstrated that the short-term mindfulness practice offered through the BiNKA training did not provide access to 'pure' or 'unbiased' experience, even though some scholarly definitions of mindfulness might suggest that can occur. Mindfulness experience in our program was rather shown to be influenced by the prevailing preconceptions and discourse on the topic (and this may have seeped in via outside influence or even via the views and biases of the MBI instructors themselves, since they are also susceptible to current sociocultural and other influences). In particular, course attendees sometimes showed typical strategies for rationalizing and legitimizing their personal consumer behaviors. In sum, each method offered distinct insights that would not have been accessible through the application of a single method. What the combination of the different methods, therefore, allowed was to take different perspectives on the research object that supplemented and enriched one another, thereby providing a more nuanced and holistic picture (Morse's and Chung, 2003) of the participants' mindfulness experiences and their relation to sustainable consumption behavior during the BiNKA training.

Furthermore, the pluralistic qualitative research turned out to be a promising way to inform single methodical approaches, hence helping to avoid hasty, one-sided and biased interpretations concerning our research topic. As Alvesson and Sköldberg (2017) put it, "the researcher can very often make the empirical material more or less fit into the preferred framework" (p. 370). Depending on a researcher's personal relation to mindfulness practice, it is easy to find evidence for or against the effectiveness of such a training. Regarding the BiNKA project, some of the researchers were, in fact, actively engaged in regular mindfulness practice. An exclusive application of CA might have led to an overestimation of the positive effects of the training. On the other hand, an isolated application of DA could have prevented seeing the clear tendency of the intervention to have positive effects on awareness, well-being and ethical virtues of the training. This allowed for a more humble, critical and self-reflective interpretation of the data material. For example, the initial CA coding did not distinguish between singular and lasting effects of the training, thereby exaggerating the program's actual effectiveness. IPA helped to clarify this issue by elucidating this distinction in people's reports of their course experience. This example illustrates how the in-depth analysis of the individual course experience through IPA helps to get a more detailed understanding of the effects of a mindfulness training and their conditionality. Such a detailed understanding is no default part of CA application. Another case is the way people spoke about their consumer behavior and the way it was affected by the BiNKA training. Attendees would often express perceived changes regarding their consumption without actually being able to precisely describe them. Applying CA, such statements were coded as reports on the course effectiveness. However, a discourse-analysis-inspired perspective can remind us that

interviews constitute an opportunity for ‘moral story-telling’ (Silverman 2000) and allow interviewees to “frame their accounts in a politically conscious manner” (Alvesson and Sköldberg 2017, p. 365). Against this backdrop, we discarded any kind of speculative statement on consumption-related changes unless interviewees were able to illustrate them with concrete examples.

What makes this mutual information possible is the entanglement of distinct epistemological perspectives and paradigms coming along with the different methods. As Frost (2011) points out, “using different methods to analyze data means that different ways of looking at the data are being brought to the process” (p. 150). Obviously, none of these ways is better than another. They all make unique contributions to the understanding of the phenomenon under investigation, thereby developing a more holistic understanding of the latter. CA, as applied within the BiNKA study, provided a positivist point of view, looking at observable effects resulting from the training. While GT and IPA also included positivist elements, their underlying paradigm can was primarily constructivist-interpretive: Both looked at the way participants generated meaning from their course experience. While in the case of IPA, the inquiry sticks more strongly to what the interviewees report about their subjective experience, GT analysis is not interested in the subjective experience as such, but rather aims to disclose a larger social phenomenon behind these reports. In our study, this allowed to make visible the subjective differences in experiencing and hence benefiting from the various course elements through IPA, on the one hand, while on the other hand identifying transsubjective factors influencing the course experience by applying GT. DA, finally, looked at the BINKA training from a rather critical and even deconstructive point of view, in the sense that it looked for evidence questioning the very essence of what some scholars claim mindfulness practice to be: a state of pure observation. Overall, combining such perspectives seems particularly relevant for mindfulness research, which is suffering from a positive publication bias (Nowogrodzki 2016) and a general tendency insufficiently to address and critically reflect methodological hindrances and epistemological assumptions (Van Dam et al. 2017). Enriching positivist paradigms with more differentiated constructivist-interpretive or even critical-deconstructive perspectives might help evaluating the effectiveness and appropriateness of mindfulness practices more accurately. Pluralistic analysis may also contribute to better understanding of what is often implicitly being conveyed by mindfulness instructors, as well as by program content, enabling us to refine teaching and practices. As this study shows, the type of qualitative analysis allows us to acknowledge mindfulness’s positive potential while also recognizing its limitations, hence contributing “to surmount the prior misunderstandings and past harms caused by pervasive Mindfulness Hype” (Van Dam et al. 2017, p. 22).

Of course, a pluralistic qualitative approach to mindfulness comes along with new challenges and shortcomings. Two of these became particularly relevant in our study. Firstly, there are practical limitations to the resources and capacities (also researchers’ skills) that research projects can dedicate to the qualitative investigation of MBIs. When choosing to analyze data material with different methodical lenses, the diversity of insights comes to some extent at the expense of greater depth of exploration. For example, we could only touch upon the observation that different training elements were perceived very differently from one participant to another, despite this fact’s relevance for the research project. The impression that many attendees in this particular mindfulness-based intervention highlighted the more traditional consumer education activities integrated into the training as useful in

terms of their learning experiences and less often the meditation practice, as such, is a very relevant finding, given that the research project sought to investigate the potential contributions of a mindfulness training to the field of education for sustainable consumption. Unfortunately, it was not possible to go back to the participants and investigate this aspect in further detail. Nevertheless, it is also clear that qualitative inquiries can never reach completion anyway, nor can related theories be finally proven or rejected on the basis of qualitative analysis (Alvesson and Sköldberg 2017). However, our arguments should not be mistaken as a naive request to multiply the numbers of methodical approaches in qualitative mindfulness research. It may not always be necessary or fruitful to fully apply several methods within a research project. Following Alvesson Sköldberg's (2017) suggestion, it is equally possible to analyze a selected part of the data material with a different method. Furthermore, we suggest complementing a methodical perspective with partial or full application of contrasting methods and to use such a multifaceted approach as a heuristic tool to inspire one's research and theoretical considerations, as well as to raise awareness of personal assumptions and biases.

A second difficulty of a pluralistic qualitative research is that it might affect criteria such as reliability, generalizability and objectivity of the research (Frost 2011). The application of different approaches by the same researchers will inevitably influence the interpretations and might thus blur the individual findings of each method. In situations in which the proper application of a specific method stands as the focus of the research project, this can, in fact, be a problem. However, this shortcoming is compensated by the benefit to the research's comprehensibility and self-reflexivity. As discussed above, the reciprocal influence of the methods constitutes a central epistemic strength, as it enriches each approach by making visible new aspects of the phenomenon that would have remained unseen from a single methodical angle. Moreover, (qualitative) research is always dependent on the researcher, his/her specific disciplinary background, methodical training as well as interests and paradigms he/she holds (e.g. Frost 2016). In our experience, it is a great strength of using more than one method to make these more visible and hence render the interpretative process more transparent.

6. Limitations and future research

Our approach itself has a number of limitations that in the spirit of a reflexive methodical account need to be made transparent. Four restrictions seem to be particularly relevant to us. The first major limitation is that the comparison of methods was limited to the data-analysis phase only. This limitation resulted primarily from the fact that our decision to investigate the specific contributions of various qualitative methods in the field of mindfulness research was only made during the course of the research study process, thus preventing preparatory work that would have been advantageous. In particular, the interview design was not specifically tailored to a combined qualitative analysis and remained stable throughout the data collection. This entails at least two consequences: For one, method-specific procedures in the collection of data, such as the iterative entanglement of data collection and data analysis as well as the adaptation of the interview guideline, as is for example applied in Grounded Theory, could not be undertaken. Therefore, the potential of the different methods could not be fully unleashed. For another, the interview guidelines had a focus on the effects

experienced by the interviewees due to course participation and was hence more strongly oriented toward the content analysis. This orientation most probably influenced the statements of the interviewees and hence restricted the potential findings of each method from the outset. However, the extent of this influence has not been at the focus of this research and defines an important limitation in regard to its self-reflection. Expanding the comparison to the data collection would have allowed a more detailed understanding of how data collection effects the findings concerning MBI research. Further inquiry addressing the methodical sensitivity of (qualitative) mindfulness research is needed to shed light on this aspect.

A second limitation results from the fact that the application of the different methods in our investigation was partly carried out by the same persons. Efforts were made to achieve further external validation of the study results through interpretation meetings, the inclusion of student assistants in the coding process, an undergraduate research lab and out-sourcing DA to a Bachelor thesis. A more rigorously independent application of the methods for further comparative studies would be desirable and of interest. It must be kept in mind, however, that (qualitative) research is always dependent on the researcher, his/her specific disciplinary background, methodical training and specific interests, paradigms and other skills that he/she possesses. Considering this limitation, a step further in the sense of self-reflexive methodology, it might be valuable systematically to analyze researcher sensitivity in regard to mindfulness research more generally in future research.

Third, some of the findings described above could only be too briefly touched upon, since the diversity of insights we obtained came at the expense of greater depth of exploration. Especially the role of subjective theories and the impression that the training confirmed these theories instead of making them conscious constitutes a particularly relevant line of inquiry for further research on mindfulness practice that has only be addressed briefly in this study.

Fourth and finally, it needs to be clarified that our findings concern a particular MBI, underpinned by a specific interpretation of what mindfulness is and how it may be facilitated and taught by specific people. Hence, there are good reasons to assume that other teachers and curricula might have elicited a very different pattern of response and experience. This raises two questions that remain unaddressed due to the confined scope of this study, namely (1) to what extent the findings discussed above can be generalized, and (2) which role the teachers delivering the BiNKA training played in bringing about these findings, in particular with regard to how their subjective theories on mindfulness (and consumption) may have affected the attendees' course experience. Especially the latter question seems to be a very much neglected issue of mindfulness research, yet inquiring it could help understanding both program developers and teachers as to what they are actually doing and how this relates to the idea of mindfulness in general.

Despite the limitations mentioned above, we believe we have shown how pluralistic qualitative mindfulness research can be used to identify blind spots and limitations of a single method, generally increase the self-reflexiveness of one's methodological approach and thus help arriving at a more differentiated and comprehensive understanding of mindfulness practice. It would be desirable to intensify the method-reflexive discussion here in a joint effort to conduct not only more, but better

quality, qualitative mindfulness research and, in a further step, to extend it to the combination of different methods, for example, in the field of mixed-methods studies and the combination of qualitative methods with neuroscience.

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent statement
Informed consent was obtained from all individual participants included in the study before their inclusion in the study.

Author contributions
PF: designed and executed the study, coordinated and participated in the data analyses, and wrote the paper. LS: co-designed and co-executed the study, participated in the data analyses and wrote the sub-sections on qualitative content analysis, DF: co-designed the study and participated in writing the paper., KK: Undertook the DA analysis, wrote the corresponding sub-sections and supported in formatting the manuscript, PG: supervised the execution the study and the data analysis and participated in writing the paper. All authors approved the final version of the manuscript for submission.

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9.9. Mindfulness, education and the sustainable development goals

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1. Introduction

Education plays a dual role in sustainable development: it is both a means and an end. Since the sustainable development discourse began, calls have been made for it to be used (as a means) to achieve sustainable development goals (SDGs). Indeed, its potential to both raise awareness of problems, and to promote the skills, capacities and motivation needed to address these problems makes it an obvious choice and approach to address any SDG (Rieckmann et al. 2017; Wamsler et al. 2012). As an end, education is classically seen as a process that reveals the potential and talents of human beings in the pursuit of a good life, and for the betterment of the common good (Klafki 2000). Ensuring that human beings have the opportunity to embark on this journey can be considered as a SDG in its own right (Foster 2001).

Both ambitions are reflected in the United Nation's SDG 4. A key target is here the provision of learning environments that are safe, non-violent, and effective (Target 4.A). Others are the need to substantially increase the number of young people and adults in education and training (Target 4.4), and the bold goal to ensure that all learners are capable of contributing to sustainable development (Target 4.7). Delivering these SDGs (education as a means), and ensuring that all human beings can adequately educate themselves (education as an end), requires teaching and learning environments that are based on ethical principles (e.g. non-violence, equity, respect). Furthermore, they should enhance the quality of learning processes for diverse groups of learners, and provide safe spaces to critique development trajectories and their sustainability impacts.

In the search for new pedagogies and innovative approaches to educational practice, mindfulness has gained significant attention in recent decades (Schonert-Reichl and Roeser 2016). It is gaining popularity as an innovative approach to support learning processes in a number of different ways. Most recently, it has also caught the interest of practitioners, researchers, and policymakers in Education for Sustainable Development (ESD).

In this chapter, we critically assess the connection between mindfulness, education, and ESD. The aim is to explore the potential of mindfulness as an educational innovation in the context of the SDGs, in particular SDG 4. After providing some background to the philosophy and practice of mindfulness (section 2), we systematically analyze and present its linkages with education in general (Section 3) and, subsequently, with education for sustainability in particular (Section 4). In this context, two highly-relevant fields of application in ESD are discussed in greater depth: climate change and

resilience (Section 5) and consumption (Section 6). We conclude with some critical perspectives and possible ways forward (Section 7).

2. Mindfulness

The concept of mindfulness is rooted in Buddhist psychology, and was introduced into Western science around 40 years ago. It originates from the Pali term *sati* and its Sanskrit counterpart *smrti*, literally meaning *memory, recognition, consciousness* (Pali Text Society 2012). Its role within Buddhism relates to Buddha's teachings, which are based on the Four Noble Truths, namely: (1) the observation of suffering, (2) the identification of its sources, (3) the realization that suffering can be overcome, and (4) the understanding that there is a path to achieve the latter (Digha Nikaya 1998). The path to overcoming suffering is called The Eighfold Path, whose seventh element is *samma sati* or *right mindfulness* (Bodhi 2011). The exact meaning of right mindfulness is controversial, especially since academic interest in the topic has increased at the beginning of the 21st century (Williams and Kabat-Zinn 2013).

Although current mindfulness research is characterized by conceptual ambiguity (van Dam et al. 2018), in Western culture and science, mindfulness is most commonly defined as intentional, non-judgmental attentiveness to the present moment (Kabat-Zinn 1990). It is seen as an inherent quality of human consciousness that is accessible to—and empirically assessable in—individuals, independent of their religious or spiritual beliefs (Baer 2003). This conceptualization forms the operational foundation for the vast majority of mindfulness research, including in relation to education (Bergomi et al. 2013; Grossman 2015, 2019). Since its introduction into Western science, an extensive body of research has linked it to established theories of attention, awareness, emotional intelligence and other cognitive-emotional functions (Brown et al. 2007; Carroll 2016; Goleman 2011). In addition, various theories and methods have been developed to assess it as: a temporary state (e.g., Lau et al. 2006), an enduring trait, in terms of one's predisposition to be mindful in daily life (e.g. Baer et al. 2006), and a practice (mindfulness training, e.g., Black 2011). Without training, trait mindfulness appears to be stable over time (e.g. Brown & Ryan 2003). However, empirical studies suggest that repeated mindfulness training can cultivate greater state mindfulness over time, which presumably contributes to increases in trait mindfulness (Kiken et al., 2016). The literature makes a conceptual distinction between two categories of mindfulness practices: Mindfulness Meditations (MMs) and Mindfulness-Based Interventions (MBIs) (cf. Hanley et al. 2016). Even though this distinction is not clear-cut, MMs usually describe different practices that are rooted in spiritual traditions (e.g. Zen, Vipassana). In contrast, MBIs usually refer to secular mindfulness practices. They can incorporate MMs, but generally do so within a larger collection of activities and therapeutic techniques. In this context, mindfulness-based cognitive therapy and mindfulness-based stress reduction are the most prominent and well-researched (Chiesa & Malinowski 2011).

Over the past two decades, mindfulness in general and particularly MBIs have received increasing attention in academia and various fields of practice, including psychology, medicine, businesses, sports and even the military (see van Dam et al. 2018). The number of scientific publications on the

topic has multiplied tenfold over the past ten years (AMRA 2019). Several studies suggest that MBIs can have positive effects, e.g. on health and well-being (Grossman et al. 2004), emotional regulation (Hill and Updegraff 2012), as well as memory, attention and cognitive performance (Eberth and Sedlmeier 2012; Zenner et al. 2014). In addition, MBIs are attributed to interpersonal qualities, such as compassion and prosocial behaviors (Luberto et al. 2018), and the potential to stimulate ethical virtues (e.g. patience or equanimity, see Grossman 2015). For these reasons, the mindfulness has recently also received growing attention in the field of education.

3. Mindfulness and Education

The introduction of mindfulness in education has been characterized by the following developments:

- It has been piloted in different educational arenas, from kindergarten to adult learning, targeting both students and teachers.
- It was primarily intended to change deviant behavior, promote personal resilience, and improve student performance.
- Cultivating ethical virtues has only recently been explored as a potential application, with implications for sustainability.
- Today, mindfulness is receiving mainstream acceptance in education.

Various forms of mindfulness practices have been used in educational contexts for many years (Bush 2011; Morgan 2015). However, it was not until around the post-2000 years that such practices received renewed attention among educators, following a broader interest in mindfulness in other fields (cf. Section 2). Since then, mindfulness has penetrated all areas of education, from preschool to K-12 (kindergarten to grade 12), and higher and adult education (Schonert-Reichl and Roeser 2016). This interest has been denoted by some commentators as a “contemplative turn” (Ergas 2018), a “postsecular turn” (Wu and Wenning 2016) or a “therapeutic turn” (Hyland 2009) in education. At the same time, critics have noted that this renewed interest in mindfulness was spurred by surprisingly divergent interests (Ergas 2015). At least three different motivations have been identified.

The first, and maybe most prominent motivation, concerns its clinical use in the Western world. Clinical studies have shown that mindfulness can counteract symptoms of depression, stress, anxiety, attention dysfunction and other, related symptoms (Grossman et al. 2004). This inherently pathological notion sees mindfulness as a remedy can treat or prevent medical disorders or other health issues. In education, this line of reasoning is reflected in attempts to use mindfulness as an intervention to remedy aggressive and maladaptive classroom behaviors (Singh et al. 2007; Franco et al. 2016). It can, it is argued, help mitigating deviant behaviors and thus improve students’ functioning in education systems.

The second rationale is based on a more salutogenetic narrative. Rather than counteracting the causes of unwanted behavior, the emphasis here is on using mindfulness as a practice and resource to strengthen factors that contribute to good health. In education, this is manifested in programs and studies that explore the positive contribution that mindfulness can make to maintaining and improving

individual resilience to stress, both among teachers and students (Meiklejohn et al. 2012). Mindfulness, it is argued, can prepare learners and teachers to cope with the demands and hardships of educational settings.

The third rationale positions mindfulness as a contributor to broader efforts to enhance students' academic performance. Typically, research in this vein refers to the demonstrated effects of mindfulness on awareness and concentration, and links these to academic attainment (Beauchemin et al. 2008). Mindfulness, it is argued, can help to boost the quality of academic work in educational settings (cf. Section 2).

It goes without saying that these motivations are idealized forms and understandings that, in reality, often overlap. However, given the fact that education is a concept that is defined by purposiveness, it is important to bear in mind that these different emphases and framings of mindfulness have paved the way for its infusion into the education system over time. Today, mindfulness is receiving mainstream acceptance in education (e.g. Rhodes 2015). The number of academic publications on mindfulness and education is steadily increasing, and multiplied tenfold between 2006 and 2014 (Schonert-Reichl and Roeser 2016). Such studies have mainly investigated the potential of mindfulness to equip learners with social-emotional skills, and consequently improve learning outcomes, the well-being of teachers and learners, and improve learning environments (pre-school, primary and secondary education, as well as higher education). This trend is strengthened by the appearance of numerous textbooks on mindfulness and education, ranging from scientific handbooks (e.g., Schonert-Reichl and Roeser 2016), to practical guides "for cultivating mindfulness in education" (e.g., Nhất-Hanh and Weare 2017). The emergence of international organizations and networks, such as the Association for Contemplative Mind in Higher Education (ACMHE 2015), the Mind and Life Education Research Network (MLERN 2019), the Association for Mindfulness in Education (2019), or the British-based Mindfulness Initiative (2019) provide further proof of mindfulness' influence in today's youth and adult education systems.

More recently, a fourth potential has attracted the interest of educators. This relates to a longstanding controversy in the field of mindfulness research: its role in cultivating broader ethical virtues (Grossman 2015; Monteiro et al. 2015). According to critics, mainstream education has been almost exclusively been preoccupied with the three aforementioned motivations (i.e. coping with maladaptive behaviors, improving grades, and individual resilience). This preoccupation, and the widespread neglect of the ethical dimension in mindfulness practice, has prompted scholars to call for a revolution in the use of mindfulness in education. Proponents argue however that this revolution should be more critical of, and explicitly address the (unintended) side-effects of mindfulness (cf. Section 6). Most important, the re-invention of mindfulness in education should place the cultivation of "moral and civic virtues" at the forefront (Simpson 2017). Mindfulness, it is argued, can support transformation by clarifying and challenging values, as well as enabling a radical critique of society. Such deliberations have been a major driver in the introduction of mindfulness training into ESD.

4. Mindfulness in Education for Sustainable Development

Our analysis revealed the following aspects:

- Compared to education in general, mindfulness has received little attention in sustainability teaching and learning.
- It has only recently been explicitly promoted as a new way of teaching and learning that is needed to create a more sustainable society.
- The notion of "ecological mindfulness" has emerged, which promotes a different way to learn and foster scientific understanding and action.
- Recently, scholars have argued that mindfulness can improve sustainability institutions and curricula. Innovative examples have emerged.

In contrast to the prominent role of mindfulness in education in general (Section 3) it has, so far, received limited attention in the ESD context, especially in academia (Wamsler et al. 2017). It is only recently that contemplative teaching methods, including mindfulness, have explicitly been promoted by scholars, practitioners and mindfulness networks as a new way to address socio-ecological challenges and create a more just, compassionate, reflective, and sustainable society (Gugerli-Dolder et al. 2013; Wamsler et al. 2017). This development is primarily based on the rationale that mindfulness has the potential to support pro-social and pro-environmental behavior, human-nature connections, critical thinking, ethics, and virtues (cf. Sections 2-3 and 5-6).

In line with this, the concept of "ecological mindfulness" has been emerging in sustainability teaching (Mueller and Greenwood 2015; Sol and Wals 2015). Underlying this notion is the idea that the proliferation of segmented knowledge fields is inconsistent with the interdisciplinary and hybrid learning needed to foster scientific and cultural understanding, and actions leading to socio-ecological change. Hence, ecological mindfulness suggests that the integration of thought, rather than its separation, should be the purpose of sustainability teaching and learning. Accordingly, scholars argue that the ecological mindfulness of teachers is crucial in shaping students' understanding of nature–society relations, and that it requires integrating indigenous, cultural knowledge and practices (such as mindfulness) within existing scientific frameworks (Chinn 2015).

In addition, an increasing number of pioneering scholars are calling for mindfulness-based approaches to improve educational institutions and curricula oriented toward sustainability and well-being. It is argued that, in the context of sustainability, teaching and learning require spaces where diverse ecological, holistic, and place-responsive perspectives can take root, be nurtured, and flourish into ways of knowing, being, and becoming that serve people, places, and the planet (Greenwood 2013; Sameshima and Greenwood 2015; Wamsler 2019). In line with the first four potentials of mindfulness that have been identified in education in general (cf. Section 3), it is argued that teaching should become a way to work towards a "learning system" in which people collectively become more capable of withstanding setbacks and addressing complex sustainability challenges (Sol and Wals 2015).

Two innovative examples for creating such learning systems and systematically integrating mindfulness into ESD can be found at Lund University (in Sweden) and Leuphana University

Lüneburg (in Germany). The Lund University Centre for Sustainability Studies (LUCSUS) set up the Contemplative Sustainable Futures Program at the end of 2015. The program aims to explore the role of inner dimensions and transformation for sustainability, and to create space and opportunities for learning, knowledge development, and networking on the topic. Building blocks include teaching, research, and networking activities, which also explore the interlinkages between mindfulness and the SDGs (LUCSUS 2015). Outcomes have, so far, included the establishment of: (i) an Experimental Learning Lab on mindfulness in sustainability science, practice, and teaching; (ii) the integration of mindfulness-based approaches into existing courses in environmental studies and sustainability science; (iii) a new Masters-level course on "Sustainability and Inner Transformation" with a linked Practice Lab; (iv) a professional knowledge database and network; and (iv) various research studies and frameworks for more integral research and education (Wamsler 2019). The integration of mindfulness into existing courses includes, for instance, a written reflection on students' learning in relation to the five key aspects of mindfulness (observing, describing, acting with awareness, non-judgement, and reactivity) (Baer et al. 2006), encouraging mindful interactions during listening, debating, reflecting and working together, and voluntary mindfulness sessions. The latter do not only address individual, but also social and ecological dimensions.

At Leuphana University, courses in sustainability science are offered that experiment with two, new pedagogical approaches which incorporate mindfulness practice: reflexive knowledge generation (Frank 2018; Frank and Fischer 2018), and self-inquiry-/ self-experience-based learning (Frank and Stanszus 2019). In the reflexive knowledge generation format, students systematically observe the way they deal with new information about controversial sustainability issues, for example meat consumption. The aim is to make them aware of the non-intellectual factors that often unconsciously influence the ways in which we deal with new information and arguments, laying the ground for more open, modest and benevolent reasoning processes. Self-inquiry and experienced-based learning make students themselves the object of inquiry. Here, students engage in a personal sustainable transformation project designed to encourage them to observe and reflect upon their subjective experience.

5. Field of application: Education for sustainable climate change mitigation, adaptation and resilience

Mindfulness has been applied to various ESD topics. Most progress is observed in the fields of: i) consumption, and ii) climate change mitigation, adaptation and resilience. Regarding the latter, we identified the following aspects:

- Mindfulness-based teaching and learning methods are increasingly explored to address new demands caused by climate change (e.g. individual capacities and qualities).
- In contrast to climate change mitigation, there is little academic discourse on mindfulness-based education regarding climate change adaptation and risk reduction.
- Innovative approaches are, however, emerging, within both private and academic institutions.

In the context of growing climate and disaster risks, and associated uncertainties, sustainability is increasingly being referred to as a learning challenge (Doppelt 2017; Whitehead et al. 2017; Wamsler 2018). It is argued that, in addition to creating appropriate forms of governance, legislation, and regulation, alternative forms of education and learning are needed for people to develop the capacities and qualities that will enable them to contribute to alternative, climate-adapted behaviors, lifestyles and systems, both individually and collectively (Sol and Wals 2015). Increasing research on behavioral sciences and economics supports this understanding (cf. Camerer et al. 2005).

Consequently, mindfulness-based teaching and learning methods are being explored, particularly in the context of educational activities that focus on climate change mitigation (i.e. measures and strategies to reduce the causes of climate change). Examples are the revision and development of new syllabuses on global environmental politics, sustainability leadership development and “mindful climate action” (e.g., Barret et al. 2016; Litfin and Abigail 2014).

At the same time, there is little academic discourse on mindfulness regarding climate change adaptation and risk reduction education (i.e. regarding measures and strategies to reduce the impacts of climate change). This is surprising, given the fact that these topics can be very sensitive, and trigger memories of sorrow and vulnerability (Wamsler et al., 2017; Wamsler and Raggers 2018), making mindfulness-based approaches a potentially valuable approach. It also neglects emerging research on the interlinkages between mindfulness, climate change mitigation *and* adaptation. Individual mindfulness disposition might, for instance, influence people’s perceptions of climate change and risk, their motivation to support climate policies and the kinds of actions that are (not) taken (Wamsler 2018; Wamsler and Brink 2018).

Based on the increasing knowledge in the field, innovative initiatives are being developed. Neuroscience-based mindfulness training is, for instance, increasingly offered by private organizations to assist people (including students, teachers and professionals) to cope with, and address, climate-enhanced adversity (Doppelt 2017). An innovative example from academia is the ‘Sustainability and Inner Transformation’ course at LUCSUS (originally named ‘Mindfulness, Compassion and Sustainability’) (Wamsler 2019; LUCSUS 2015). The overall aim of the course is to critically assess the potential role of inner transformation for sustainability. The objectives are threefold. Firstly, it allows students to develop a critical understanding of the potential interlinkages between inner transformation and sustainability (theories and practices). Secondly, inner transformation theories and practices are assessed in relation to specific sustainability fields, including sustainable climate change mitigation, adaptation and risk reduction. Thirdly, the course allows students to engage in, and critically reflect on, the nature of inner transformation and its salience in sustainability science and learning. In this context, mindfulness is explored as an inherent human capacity that has the potential to support such transformation. The course is very popular with both students and scholars and has been acknowledged as being the first of its kind (Egan 2019). It is closely linked to the research and network of the Contemplative Sustainable Futures Program (cf. Section 4). Another network that addresses the link between mindfulness and climate-change related issues is, for instance, The Mindfulness and Social Change Network, which focuses on strengthening mindful pathways towards social justice and environmental sustainability (Mindfulness and Social Change Network 2019).

6. Field of application: Education for sustainable consumption

With respect to the application of mindfulness to consumption and lifestyles, we identified the following aspects:

- Over the past decade, mindfulness has increasingly been linked to sustainable consumption, both in research and education.
- Related claims are based on five mechanisms that could, in theory, support the development of sustainable consumption and lifestyles.
- Innovative educational approaches have recently been implemented to test related claims.

Like the application of mindfulness to ESD in general, there is increasing interest in relation to consumption and lifestyles. Such developments are based on research that has identified five mindfulness mechanisms that could theoretically support the development of sustainable consumption behavior (Fischer et al. 2017). The first concerns enhancing introspective capacities, thereby laying the ground for changing previously-unconscious routines. This is thought to help elucidate and diminish unconscious, non-sustainable consumption choices. Secondly, mindfulness practice may be help to clarify and support the role of non-material values in people's lives. The third mechanism refers to recent findings that claim that mindfulness explicitly increases pro-social behavior. Pro-social behavior is, in turn, positively linked to pro-environmental intentions and behavior. Fourth, mindfulness is associated with a greater capacity to make congruent choices that may narrow the attitude–behavior gap, and support more sustainable consumption patterns. The fifth mechanism has recently been suggested by Geiger et al. (2019). They found that mindfulness may foster sustainable lifestyles due to its potential to improve physical health and well-being.

Drawing upon these theoretical developments, innovative educational approaches have recently been proposed. The German research project BiNKA (Education for Sustainable Consumption through Mindfulness Training) was the first study designed to empirically investigate the potential through an eight-week consumer-focused mindfulness course to foster sustainable consumption (Stanszus et al. 2017). Reported effects mostly related to changes in attitudes and intentions, a reduced focus on material values, and the ability to observe inner states and processes related to consumer behavior (Geiger et al. 2018). The BiNKA study has inspired a variety of other teaching activities at Leuphana University. One example is the seminar "Transformation toward sustainable consumption: Individual and personal perspectives", where mindfulness training was used to sensitize students to their inner states and processes as part of the process of deliberately changing their consumer behavior (Frank and Stanszus, 2019).

7. Critical reflections and ways forward

Despite an exponentially-growing body of literature and extensive interest in education and mindfulness, research on mindfulness in ESD is still in its infancy. Nevertheless, past developments, increasing knowledge, and emerging innovations clearly indicate its potential to contribute to education and the SDGs, both as a means and as an end.

However, related explorations require actively considering and engaging in critical debates and associated challenges. Concerns have, for instance, been voiced with regard to the significance and validity of mindfulness research. A number of conceptual and methodical flaws have been identified, mainly concerning the quantitative (and by far most frequent) approach to its study (e.g. van Dam et al. 2018; Grossman 2015, 2019). There are calls for a more humble and cautious interpretation of the (allegedly) positive effects of mindfulness training, together with a more nuanced and differentiated inquiry, based on a clear definition of mindfulness and a transparent description of the related intervention or practice. The integration of a variety of disciplinary and methodological approaches is also warranted. The tendency to simplify the concept and focus on its positive effects has in parts also driven its social rejection.

Mindfulness should not be seen as a universal panacea. Instead, any potential negative applications or side-effects need to be actively considered, such as its potential instrumentalization for undesirable purposes, or to reproduce neoliberal ideologies of self-optimization (Reveley 2016; Walsh 2016). In addition, it is important to adapt its use to the context of sustainability and associated fields of application (Whitehead et al. 2017; Wamsler 2018).

By actively considering these critiques and challenges, mindfulness can become a vehicle for critical, improved education and social change (rather than individual self-optimization), a field which is clearly underexplored and highly relevant with regard to the SDGs, particularly SDG 4 and 4.7. This could mark the beginning of a radical engagement with inner and outer transformation, facilitated by a more comprehensive engagement with the critical potential of mindfulness in ESD. While this next phase is only just appearing on the horizon, there are strong indications that mindfulness will continue to permeate mainstream educational practice and ESD. Influential players, such as the United Nations Educational, Scientific, and Cultural Organization UNESCO, have started to openly advocate for better recognition of cognitive, socio-emotional and behavioral dimensions of learning in SDG-related education (Rieckmann et al. 2017), with mindfulness being the leading facilitator for such learning (Bresciani Ludvik and Eberhardt 2018).

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9.10. What happens when people start to meditate on consumption? Insights from a qualitative intervention study

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Abstract

Over the past two decades, mindfulness trainings have received increasing attention in academia and various fields of practice. Regarding consumer behavior, it has been suggested as a means to foster more sustainable consumer choices. This study looks into perceptions and experiences people make when participating in a consumer-focused mindfulness-based internvention. Out of 137 participants, we conducted semi-structured interviews with 25 attendees (students and employees). Data analysis was undertaken applying a combined qualitative methods approach, consisting of qualitative content analysis, grounded theory, and discourse analysis. Results are presented in three steps: Firstly, the study identifies effects experienced by the interviewees as a perceived result of course participation. These effects include mindfulness-related effects and consumption-related effects. Secondly, the study discovers preconditions, influential factors, and limitations for the effects described by the participants to occur. Thirdly, the study provides a theoretical understanding explaining the variety of course experiences and their relation to consumer behavior. We conclude that mindfulness practice is not a miracle cure for promoting sustainable consumption. Nevertheless, the practice could play an important role within educational settings, especially when it is complemented with other learning activities.

Keywords: Sustainable consumption, mindfulness, MBSR, intervention study, pluralistic qualitative research

1. Introduction

Over the past two decades, mindfulness practices have received increasing attention in academia and various fields of practice (Van Dam et al. 2018). The number of new scientific publications per year on the topic has multiplied tenfold over the past ten years (AMRA 2019). It is associated with a series of effects, such as increased health and well-being (Grossman et al. 2004), emotional regulation (Hill and Updegraff 2012), improved attention, or cognitive performance (Eberth and Sedlmeier 2012; Zenner et al. 2014). In addition, mindfulness practices are attributed the potential to stimulate ethical virtues (e.g. patience, equanimity, or courage, see Grossman, 2015) and interpersonal qualities such as compassion and related prosocial behaviors (Luberto et al. 2017). For these reasons, mindfulness practices have recently received growing attention among sustainability scholars and practitioners seeking to explore how mindfulness-based practices can facilitate learning and support changes in behaviors (Barrett et al. 2016; Wamsler et al. 2018).

One field of practice in which the potential of mindfulness practices has been enthusiastically discussed is consumer behavior (see Fischer et al. 2017, for an overview). Mindfulness practices are seen as a potential way by which routines can be disrupted, material values reduced, well-being enhanced, and consequentially actions more closely aligned with attitudes. However, evidence that undergird these claims is by no means conclusive. Most studies only identify correlations but do not validate a causation (Geiger et al. 2019). This is particularly due to a lack of intervention studies empirically investigating the nexus between mindfulness practice and consumer behavior (Fischer et al. 2017). Between 2015 and 2018, the German research and intervention study [BLINDED FOR PEER REVIEW] set out to address this gap. A consumption-focused Mindfulness-Based-Intervention (MBI) was delivered to three different target groups and made subject to an empirical study that comprised both quantitative and qualitative inquiry. While the quantitative inquiry aimed at identifying statistically significant effects of the training on individuals' consumer behaviors [BLINDED FOR PEER REVIEW], the qualitative investigation added detailed insights into how these effects occurred and under what conditions.

This paper shares findings of the qualitative research part of the study. The article is structured as follows: In section 2, we outline the theoretical nexus between mindfulness and sustainable consumption and lay out the rationale according to which MBIs carry the potential to foster sustainable consumption. In section 3, we provide a detailed account of the [BLINDED FOR PEER REVIEW] intervention and the qualitative research design. We present our results in section 4, followed by a critical discussion (section 5). Some key limitations of our research, as well as prospective research activities allowing to overcome the latter will be pointed out in section 6. We conclude our study in section 7, arguing that mindfulness practice can contribute to more sustainable consumer choices. It shows a potential to connect individuals to inner states and processes relevant for their consumer behavior. However, our findings suggest that (a short-term) mindfulness practice alone for most individuals does not lead to strong consumption-related behavioral changes, unless people begin the practice with the specific interest to consume more sustainably. In fact, the practice might even allow individuals to stabilize unsustainable behaviors due to its potential to serve as a self-confirmatory process. In order to avoid this risk, we propose to combine mindfulness practices with analytical and explicitly consumption-related learning activities in educational settings.

2. Background: Mindfulness and Sustainable Consumption

Consumption levels and patterns have been identified as a major challenge in the pursuit of sustainable development (Alfredsson et al. 2018; Bengtsson et al. 2018). The current unsustainability of consumption manifests itself in two respects: the consumption patterns of large segments of the population in consumer societies exert immense stress on the environment (overconsumption), while at the same time a vast part of humanity is deprived of fulfilling even its most basic needs (underconsumption), which again results, among other causes, in poverty-induced environmental degradation (Princen 1999). This is exacerbated by the fact that consumption patterns are moving globally towards affluent societies, especially in rapidly developing BRICs or CIVETS countries

(Pretty, 2013). In the search for solutions, sustainable consumption research has emerged as a relatively young field of scholarship that is concerned with the understanding and promotion of sustainable consumption behaviors and the socio-technical systems that they are embedded in (Reisch et al. 2016; Liu et al. 2017). While the influence of structure and power are increasingly recognized as prominent causes (Anantharaman, 2018; Fuchs et al. 2016; Geels et al. 2015), individual consumer behavior and its changeability were and remain a cornerstone of sustainable consumption research and constitute significant targets for complementary interventions aimed at influence or change (Prothero et al. 2011; Reisch et al. 2016). In this strand of inquiry, a wide array of theoretical approaches have been refined and applied to study consumer behavior (Kaufmann-Hayoz et al. 2012; Middlemiss 2018), rendering it a highly interdisciplinary field of study (Lorek and Vergragt 2015). Di Giulio et al. (2014) suggest to differentiate consumption behaviors according to how consciously and intentionally they are carried out.

While consumer behavior can be changed without requiring reflection or conscious consent from the consumer through strategies for example through nudging (Lehner et al. 2016; Thaler and Sunstein 2008), theories and approaches in the paradigm of informed and reflexive consumer behavior (McGregor 2005) aim to promote conscious and deliberate choices for more sustainable consumption options among individuals. Achieving this aim, however, is by no means a trivial issue. Individual consumer behavior is, like any other example of normative decision-making, constitutes a highly complex process that englobes a number of determinants, such as attitudes, personal norms, and values (e.g. Klöckner 2013). While the elucidation of these determinants is of great value for the theoretical explanation of behavior, it is not sufficient for understanding the process of behavioral change. To this end, procedural or stage models have been developed that conceptualize behavioral change as "transition through a sequence of qualitatively different change stages" (Bamberg and Schulte 2019, 308). Building on and extending the work of Schwartz' and Howard's (1981) normative decision-making model of altruism, Klöckner and Matthies (2004) conceive of normative decisions as being reached in a four-stage process. The first - the attention state - covers the necessary preconditions to initiate normative decision making, namely (a) the awareness (in the case of sustainable behavior) of the need to consume sustainably, (b) the awareness of the relevance of one's individual behavior with regard to that need and (c) the awareness of one's ability to behave sustainably. At the motivational stage, different motivational systems are triggered. In particular, if a person holds the intention to consume sustainably, the motive to behave in accordance with one's internal value system must be exposed. At the same time, other, potentially conflicting motives come into play at this stage, such as one's preference for convenience or hedonism. The authors thirdly describe the evaluation stage as the stage where "costs of possible alternative actions are anticipated and weighted" (Bamberg and Schulte 2019, 321), taking into account the previously triggered motivations. Based on this evaluation, a person will go for either a sustainable or less sustainable action, both potentially triggering emotional reactions which might in turn activate rationalization and neutralization strategies potentially stabilizing less or more sustainable consumption patterns. Finally, the model emphasizes the importance of habits in explaining normative decision making. In fact, many consumer choices are not based on a thorough reflection of one's actual needs and values, but rather demonstrate a habitualized behavior. Summarizing, consumption is a complex behavior comprising a cognitive, emotional,

motivational and volitional dimension. In order to enable people to consume more sustainably, intervention programs need to take these different dimensions into account.

Recently, some scholars suggested that mindfulness practice could be a promising activity for self-regulated behavioral change, because it addresses these different dimensions. Grossman (2010, 2015) defined mindfulness practice as the cultivation of an unbiased experience that emerges through intentional and continuous awareness of momentary events and processes, necessarily embedded within an attitude of openness, benevolent, and compassion. As mentioned above, there is ample evidence suggesting that mindfulness practices might positively effect a variety of both physical and mental states and processes. In general, mindfulness practice is considered to bear the potential to bring together cognition and affection (Stanszus et al. 2017). It is seen to encompass the reflection of individual values and actions in each given moment and therewith to potentially strengthen peoples' ability to deliberatively focus their mind in a way that they become more sensitive for their own values, emotions and ensuing actions. In this sense, mindfulness practice can be described as an introspective training in which awareness for inner states and processes, such as thoughts, emotions, needs, etc. is systematically cultivated (Frank et al. 2019a).

Through this process, mindfulness is also conceived as a practice that promotes the development of implicit ethical values: practitioners develop a clearer sense of what is important for them in life and learn to distinguish between unwholesome (namely greed, aversion and delusion) and wholesome emotions (namely, benevolence, generosity, compassion and wisdom; see Grossman 2015). In this sense, the practice of mindfulness is proposed to counteract unwholesome tendencies and to promote ethical development based on intuitive and affective understanding of what is right and wrong (Grossman 2015; Monteiro et al. 2014), hence providing a different approach to cognitive-focused learning, which is more concerned with the acquisition of external information and conscious thought processes (Bandura and Schunk 1981).

In the last years, mindfulness practice has therefore been associated with aspects of sustainable consumption (e.g. Armstrong and Jackson 2015; Bhar 2018; Ericson 2015; Rosenberg 2004). In a systematic literature review, Fischer et al. (2017) have identified four mechanisms of mindfulness that may theoretically support the development of sustainable consumption behavior:

- Firstly, the disruption of routines or switching off the autopilot (Grossman et al. 2004) by enhancing introspective capacities and thus providing the grounds for changing previously unconscious routines is a broadly recognized potential effect of mindfulness practice. For the promotion of sustainable consumption this could mean that unconscious, non-sustainable consumption choices could be elucidated and diminished (Bahl et al. 2016; Rosenberg 2004).
- Secondly, mindfulness practice may be conducive to the clarification of values and supporting the role of non-material values in people's lives (Ericson et al. 2014). As previously mentioned, mindfulness practice has the aim of counteracting unwholesome qualities (greed, delusion, aversion) by cultivating openness, generosity, kindness and mental clarity (Grossman 2015). The fostering of such benevolent attitudes is also thought to increase individual well-being, which, in turn, is associated with an increase in intrinsic and socially

oriented values and behavior and a decrease in materialistic, hedonistic values (Burroughs and Rindfleisch 2002; Kasser et al. 2014; Richins and Dawson 1992).

- The third mechanism refers to recent findings according to which pro-social behaviors are explicitly increased through meditation practices (Leiberg et al. 2011; Lim, Condon and DeSteno 2015). This process is seen to be initiated through the development of kindness and compassion (especially in other-oriented techniques such as loving-kindness/metta meditation) (Condon et al. 2013). Pro-social behavior is consecutively positively linked to pro-environmental intentions and behavior (de Groot and Steg 2008; Pfattcheicher et al. 2016; Steg et al. 2014).
- Fourthly, and as a result of the aforementioned mechanisms, practicing mindfulness could contribute to adjusting attitudes and behaviors to each other. Chatzisarantis and Hagger (2007) relate mindfulness to increased self-perceived attention to one's behavioural patterns. That way, increased mindfulness may be associated with a greater capacity to make more congruent choices that may potentially narrow the attitude-behavior-gap and support more sustainable consumption patterns (Ericson, Kjønstad and Barstad 2014; Rosenberg 2004).

Despite the apparent conceptual connections and the increased interest of researchers, the potential of mindfulness for the promotion of sustainable consumption so far remains a scarcely researched area (Fischer et al., 2017). The existing literature relies on correlative and cross-sectional quantitative designs (Dhandra 2019; Helm and Subramaniam 2019; Hunecke and Richter 2019): intervention studies that openly investigate perceptions, experiences and effects of mindfulness practice on consumers have been non-existent before the [BLINDED FOR PEER REVIEW] project.

Between 2015 and 2018, the research project [BLINDED FOR PEER REVIEW] was carried out to address this gap and investigate whether a consumer-focused MBI could stimulate more sustainable consumer choices.

3. Intervention and research design

3.1. The [blinded for peer review] training

The curriculum of the well-established MBSR (mindfulness-based stress reduction) program, developed by Jon Kabat-Zinn (1991), was used as a basis for the [BLINDED FOR PEER REVIEW] training. This program consists of eight weekly group sessions, each lasting 90 minutes, and one additional half-day session after week six ("day of mindfulness"), as well as daily individual homework practice. Each group session includes formal and informal mindfulness exercises. Formal exercises consist of different types of mindfulness meditation such as the body-scan, sitting and walking meditation with focus on the breath, and loving kindness/ metta meditation. Informal mindfulness practices aim at cultivating mindfulness during everyday activities like eating, shopping, showering or walking. The sessions also include an introduction to the background of mindfulness and its practices and group discussions and exchange in order to reflect upon individual experiences of the exercises. The Day of Mindfulness involves an intensive formal practice of mindfulness meditation as

well as a mindful potluck meal eaten in silence. In addition to the weekly training sessions, the participants are encouraged to practice formal meditation on their own on a daily basis (20 minutes for employees and university students and 15 minutes for secondary school students). In order to support the participants during home practice, audio recordings of guided meditations are provided. Moreover, during each session, the participants are assigned a specific informal exercise to practice mindfulness at home (e.g., mindful shopping). In addition to these standard MBSR elements, the [BLINDED FOR PEER REVIEW] training was supplemented with specific consumer education activities embedded in a framework of mindful awareness (see [BLINDED FOR PEER REVIEW] for a detailed account of the training and its development, as well as [BLINDED FOR PEER REVIEW] for a practical toolkit illustrating exemplary exercises).

3.2. Qualitative research design

The training was delivered by professional MBSR trainers to two target groups, namely university students and employees of three small and medium-sized employers (one engineering office, one market research institute, one university) with no particular affinity toward sustainable consumption. In total, six training groups were implemented for each target group, resulting in a total number of twelve training groups with a maximum group size of twelve participants. The MBI was advertised to university students at three universities in Berlin by means of a universities-wide website connected to sports program and health promotion offerings. Employees were informed via e-mail of the possibility to attend the mindfulness training within their enterprise. The courses were advertised as ordinary mindfulness trainings, aimed at reducing stress, with no link to sustainability issues. In accordance with ethical guidelines of the German Psychology Association, participation was completely voluntary, reimbursement was in form of the remitted course fee, and personal data of different measurement times was linked via an anonymous personal code, so inferences to individual persons were made impossible. Individuals were excluded from participation when they showed serious indications of psychological difficulties, based upon a brief individual screening performed and evaluated by the mindfulness trainer.

The [BLINDED FOR PEER REVIEW] study was predicated upon a mixed methods design. The quantitative part aimed at empirically testing the effects of the training on individuals' consumer behavior as well as the presumed, but so far unsubstantiated mechanisms underlying these effects. For this purpose, all participants were surveyed with quantitative self-report measures shortly before (pre) and shortly after (post) the intervention, as well as six months after completion of the training (follow-up) ([BLINDED FOR PEER REVIEW]). The qualitative study reported here complemented the hypotheses-driven quantitative study through its exploratory inquiry into participants' perceptions and experiences of course participation and its relation to their consumer behavior. An independent qualitative study was deemed necessary for three reasons: Firstly, quantitative self-report measures of mindfulness have been repeatedly criticized (e.g. Grossman, 2008, 2019; van Dam et al. 2018). Triangulating the quantitative with qualitative data could engender a broader picture of the training effects. In particular, a qualitative approach could seemingly help to reconstruct the potentially differing subjective experiences of participating in training, including possible conditions and

limitations of its effectiveness. Secondly, the relation between mindfulness and (sustainable) consumption behavior had not been empirically investigated in an intervention study. An explorative approach toward this relation could provide explanations on the relation between mindfulness and consumption beyond the pre-determined hypotheses suggested in the literature. Thirdly, a qualitative perspective allowed us to provide a more critical glance at mindfulness training, a viewpoint that is often neglected given the current hyperbole around the phenomenon (van Dam et al. 2018).

Data collection

Mixed-methods intervention studies each come with a series of specific methodological exigencies that need to be taken into account when designing the research design (e.g. Sandelowski 1996). This was particularly the case for the data collection within the [BLINDED FOR PEER REVIEW] project. We wanted to make sure that the quantitative survey depicted the effects of the training as purely as possible, without further influence through additional reflective processes initiated by qualitative instruments. For this reason, qualitative data collection could not be carried out prior and during attendance of the program, as this might have affected the quantitative results. Also, the data collection needed to be conducted shortly after participation, quickly enough to capture the participants' individual experiences and perceived course effects. Logistical considerations further predetermined the research design: We wanted to reduce additional efforts to a minimum for course participants. Given these reasons, we considered semi-structured interviews as the most appropriate method for data collection.

Out of n = 137 participants, 25 were selected after the course-attendance for semi-structured interviews, and 24 were included in the analysis. While 13 participants of the sample were chosen randomly, the other 12 were selected due to the greatest extremes in score changes on the quantitative mindfulness and sustainable consumption scales (e.g. those who showed greatest vs. least improvement on scores putatively indexing facets of mindfulness). Interviews were conducted in August and November 2016 by three researchers having multiple years of experience with conducting qualitative interviews. Each interview lasted between 35 and 70 minutes and was audiotaped and transcribed verbatim. Before the start of each interview, participants were asked to consent to audiotaping the interview and were reminded of their voluntary attendance, as well as their right to refuse to answer questions or to stop the interview at any point.

The interview guideline consisted of two parts. The first part of the interview invited open-ended responses about participants` general experiences in the MBI and their practices at home. They were encouraged by the interviewer by means of follow-up questions to diverge in whichever direction they considered important to describe. In the second part, more detailed questions guided the interview, such as questions requesting a general description of eating and food-shopping routines and possible changes to those behaviors over the last weeks, as well as respondents' understanding of consumption and sustainable consumption. Interviewees were further asked if and in which way they perceived themselves as more mindful. Also, they were asked to describe their personal understanding of what mindfulness meant for them (see web appendix). At the conclusion, they were encouraged to ask any

questions they might have had and were also informed about the state of the study and the next steps of analysis.

Course participants additionally completed diary entries reflecting on their daily mindfulness practice experiences in addition to the interviews. With the consent of participants, the dairies were collected and included into the analysis.

Data analysis

Data analysis started in January 2017 and was completed in September 2018. A combined qualitative methods approach (Frost 2011) was chosen for the qualitative analysis. A combination of qualitative methodical approaches can be used to identify blind spots of a single method, to increase overall reflections about one's methodological approach and thus help to arrive at a more comprehensive understanding of mindfulness practice (Frank et al. 2019b). We developed a three-pronged research analysis specifically designed to address the diverse epistemic interests of the project (for a detailed justification and description of the procedure see [BLINDED FOR PEER REVIEW]): Firstly, at the core of the qualitative inquiry lay a qualitative content analysis (CA) based on Kuckartz (2012). CA is well-suited to triangulate quantitative and qualitative research. The possibility to undertake CA both inductively and deductively allowed us to identify the hypothesized effects of the training while also capturing the unanticipated effects and individual varieties in experiencing the training. Secondly, it was decided to apply a Grounded Theory (GT) approach (Strauss and Corbin 1997) in order to do justice to the explorative interests of the project and potentially generate new perspectives on the nexus between mindfulness and consumption. In particular, the GT approach could provide explanations and conditions for potential effects reported by the participants. Thirdly, we applied a discourse analytical perspective in accordance with Keller's 'Sociology of Knowledge Approach to Discourse' (2011). By means of this discourse analysis (DA), we aimed to investigate prevailing social perceptions and interpretation patterns in participants´ discourse around mindfulness. Moreover, we intended to inquire into whether these patterns affected the course experience, as well as the experienced relation to the participants' consumer behavior, in order to form a more critical perspective on the mindfulness intervention.

The different methods were combined as follows: Beginning with CA, we used semi-open coding to guide the analysis of the material. The quantitative hypotheses, as well as the interview guideline and the respective theoretical foundations, were used as a grid for developing a first version of a deductive code system, which was tested against the material. In addition, inductive categories were developed alongside the coding process in order to account for appearance of unanticipated effects and to reconstruct the subjective experience of participating in the [BLINDED FOR PEER REVIEW] training. Subcategories were subsequently elaborated within an iterative coding and refining process until 25% of the data was unambiguously and completely categorized in accordance with the scheme (as suggested by Kuckartz 2012). Two student assistants coded the remaining data material. Rooted in the codings, two research fellows wrote individual case summaries, synthesizing and abstracting the central effects of the intervention and its influence on participants' consumer behaviors.

DA was conducted in parallel to CA by an undergraduate student within the framework of a thesis project, following three steps: Firstly, text passages were identified in which the respondents explicitly spoke about their training experience, their understanding of mindfulness and their consumer behavior. This provided the base to search for patterns of interpretation, perceptions and collective social knowledge within the scope of mindfulness and sustainable consumption. Secondly, five interviews that represented the range of such patterns were selected for in-depth analysis. The described understandings of mindfulness and the ways they spoke about sustainable consumption were then systematically compared to scholarly literature on the topic, reflecting prevailing ways people think of and speak about mindfulness and sustainable consumption. Based on this comparison, in a third step, we (a) intended to find out to what extent the participants' statements about mindfulness and sustainable consumption reflected the prevailing ways to talk about both fields and (b) investigated if and how these ideas influenced the respondents' experience of the training.

After completion of CA and DA, the GT analysis followed, conducted by two research fellows with multiple years of experience with the method. As suggested by Strauss and Corbin, this was undertaken in an iterative three-step coding process. Firstly, each interview and the related diary were subject to another open-coding process, and categories, sub-categories, as well as early overall hypotheses, were formulated. This step was inspired by the results of CA and DA. Secondly, the axial-coding step was undertaken by comparing and applying generated categories and hypotheses to other interviews. In this step, special attention was given to the systematic search for opposing categories and contrary evidence ('flip-flop technique', Corbin and Strauss 2008) within data material. Provisional results of this process were regularly discussed in meetings consisting of the larger research team and external researchers specialized in qualitative methods, as recommended by Strauss and Corbin (1997). Through this process, we aimed to include a variety of theoretical perspectives and to circumvent the potential risk of biased interpretations due to the results of the previous analytical steps. Thirdly, during selective coding, most relevant codes were identified and synthesized into main themes, eventually leading to an overall theory on the nexus between mindfulness training and sustainable consumption.

4. Results

In line with our aforementioned research interests, the results section is structured as follows: In section 4.1, we outline the effects reported by the course participants as a result of attending the intervention. In section 4.2, we take a closer look at conditions of and explanations for the variety of effects, which is inspired by a critical appraisal of the way participants spoke about their course experience. From this analysis, the hypothesis was formed that the [BLINDED FOR PEER REVIEW] training largely worked as a self-confirmatory process in which people found what they were looking for in the first place (section 4.3).

4.1. Observed effects

In the first step, we identified those effects attendees explicitly reported during the interviews as a result of course participation. We extracted four main categories from the codings, with three subcategories:

- Consumption behavior
- Pre-behavioral dispositions of consumption behavior
- Mindfulness-related effects:
    - Increased awareness
    - Well-being
    - Ethical qualities
- Adverse effects

In the first effect category, a decrease in the interviewees' impulses to consume certain foods, such as meat and sugar, was reported in three cases (interview extracts translated from German into English): *"It is more of a mind thing, that I actually do like to eat meat, that I think it's tasty, but I am often forbidding myself to eat it. Especially non-sustainably sourced meat. And in the [pizza with meat] situation [during the training], I realized, I don't WANT that. I had this feeling of disgust"*. IGSTUX

In addition, one interviewee reported the development of sustainable consumption behavior in a previously unreflected area, namely organic food consumption:

"I didn´t think much of organic products beforehand [...] I am a vegan, but hmm, I thought it was a rip-off, because it is always much more expensive and basically, it's the same ingredients etc." "But, hmm, lately, I have been thinking, ok, I will spend the 30 cents extra and buy the organic product instead". KG3STU3

Pre-behavioral dispositions, like awareness, attitudes or intentions (effect category 2), are considered a prerequisite for changes of habitually unsustainable consumption patterns (e.g. Klöckner and Matthies 2004). Eight of the 24 interviewees reported effects on these pre-behavioral dispositions due to course participation. More precisely, they mentioned an increased importance of one's own social and ecological values, a strengthened intention to put those values into action, an increase of awareness for one's needs, as well as an increase in appreciation and gratefulness for consumption goods:

"With mindful eating, I experience the taste of every single bite with more awareness and greater appreciation, because I reflect on the origin of the products. When I then shop mindfully, I pay more heed to sustainable, organic, fair trade products". IG1STU10

The third category entails all effects related to the development of mindfulness, some of which are potentially beneficial for the development of sustainable consumption. They do not, however, show an explicit relation to (changes in) sustainable consumption. Effects in this category were experienced by almost all attendees. Firstly, a more general development of awareness for inner thoughts and processes was mentioned by 23 out of the 24 course participants. Many of those realized patterns had a

direct link to consumption (especially food) or were related to reoccurring behavior such as habitual reactions to stressful encounters at work or dealing with emotional turmoil. Decreased reactivity, e.g. to upcoming negative emotions, was reported as a likely consequence of increased awareness:

"I had the feeling that [through the practice] a lot of things did not bother me as much anymore, I could stay connected with myself and better observe what is REALLY happening". IG1STU2

The second theme describes an increased well-being through a better capability of dealing with stress and negative emotions and a more relaxed handling of difficult situations. In total, eleven participants experienced effects such as the one exemplified in the following extract:

"To pay more attention to myself. To consider my behavior more. This conscious dealing with emotions. In situations with both positive and negative emotions. I find a little more joy in the positive moments and can handle the negative ones better". IG2AN11

The development of so-called 'ethical virtues' (e.g. Grossman 2015) or ethical qualities, was the third theme in this category of codings, elaborated upon by half of the interviewees. Descriptions included the evolution of equanimity in relation to oneself and others, increase in empathy, a feeling of enhanced connection to nature and fellow human beings, and increases in compassion to others and oneself:

"I am usually compassionate with my fellow humans (e.g. offering my place in the bus to elderly people and helping them on the street), but mindfulness makes those processes conscious for me and strengthens the feeling of goodwill towards strangers". IG1STU10.

Only two course participants explicitly mentioned effects that carry an adverse potential, namely (a) a higher focus on one's own needs and (b) a decrease in bad conscience when consuming unsustainably:

"In that way, the training has […] opened my eyes […], as it helped me to accept more and say to myself: Ok. It is like that, because maybe there is not enough money right now to buy organic food". IG1STU2

In addition to these adverse effects, there are two other observations suggesting not to overestimate the seemingly positive outcomes resulting from training attendance: Firstly, the reported positive effects were often observed in singular situations, sometimes only occurring directly after a practice session. Therefore, they did not necessarily indicate general changes. Secondly, and related to the first point, we observed that effects reported in one domain of action were rarely transferred to another domain. This was especially the case for mindfulness-related effects. For example, IG1STU2's reported effects predominantly concerned here family life, and no precise illustration was given that these effects were transferred to other domains of action, such as consumer behavior. Analyzing influential factors of the training will help to understand this phenomenon.

4.2. Conditions for effects

In the second step, we aimed to identify factors that influenced attendees' course experience and hence co-determined the effects as reported by the participants. We found that whether and how the training affected the attendees in general and their consumer behaviors in particular depended on a variety of such factors, including personal aspects, such as previous experience with mindfulness practice or general living conditions of the participants, as well as aspects framing the intervention, such as the time and duration of the training (i.e. 'exposure' to the intervention) or the relation with the teacher and the group. These conditions could influence the individual training experience very differently from one attendee to another and determined the extent and intensity to which participants engaged with (certain elements of) the practice. For example, some attendees reported discomfort in doing the training with colleagues, which hindered them sharing and deepening their personal experiences:

"I sometimes found the questions and techniques problematic in this group constellation. I experienced them as somewhat invasive". IG2AN9

For others, the group turned out to be key for their positive course experience. Those participants felt a strong support by the group, because exchanges with other participants made them realize "they were not alone" with their personal difficulties.

Moreover, the various elements of the training were experienced very differently by the participants. While some felt at ease with the body-scan practice and breath awareness, others stated that they quickly fell asleep when scanning their body or that observation of the breath induced a sense of nervousness.

"I felt more comfortable with certain practices than with others. For example, I could much better relate to the breath observation than to the other methods". IG2AN9

Similarly, another practice, Metta meditation (a practice aimed at invoking thoughts and feelings of kindness) was conceived as particularly valuable by some, while others had less positive experiences with it, felt rather overwhelmed or could not relate to the technique at all:

"I tried to look at a current conflict of mine. I tried to imagine that person with whom I'm currently having difficulties and then expand my compassion to her. I think I was probably overburdened with that, because it simply didn't work. I couldn't detach myself from my feelings". IG1STU10

Variations in subjective theories (Groeben et al. 1988) of oneself, mindfulness practice, and sustainable consumption turned out to be of particular relevance for understanding differences in course experiences. For example, individuals considering themselves as "already mindful" and allegedly familiar with the related practices (IG1AN12) tended to report less effects than participants holding more modest estimations of their prior levels of mindfulness. A similar phenomenon can be found regarding consumer behavior: Those participants who already considered their consumption as sustainable were either prone to feeling confirmed or at least unaffected in their behavior. In contrast,

attendees who saw a potential for even more sustainable consumer behavior in themselves experienced the training as an opportunity to harness this potential.

Subjective theories about mindfulness practice and consumption also seemed to influence the way course attendees experienced the relationship between both constructs and transferred mindfulness-related effects to consumption-related actions. As mentioned above, some participants reported effects on their consumer behavior due to an increased awareness for inner processes helping them to connect to their actual needs. As a consequence, they avoided consumer goods they considered problematic. As one attendee explains:

"I liked the pedagogical approach behind the course. The idea that people develop the insights [concerning consumption] by themselves, through mindfulness and observation and not through instruction". IG2AN12

Other participants, in contrast, did not see any relation at all. They argued, for example, that mindfulness training was rather "self-centered", that is, an internal affair, whereas consumption and sustainability constituted "external issues". It is worth mentioning that in opposition to the [BLINDED FOR PEER REVIEW] training's core intention to foster more sustainable consumption choices through stimulating affective-motivational competencies among course attendees, about one third of the participants pointed out the role of the more discursive-intellectual consumer education activities and the group exchange as the important links between the training and consumption:

"Int: Do you think that such a consumer-focused mindfulness training can be useful in order to develop a more sustainable consumer behavior? P: Yes, I would think so. Especially when you are together with people that have thought about these topics beforehand […]. Some people might not have reflected upon these topics in advance, but others have done so for a long time already. And then there is an exchange. Int: So you think it's the group exchange? P: Yes, I think it's the group exchange". IG3AN8

4.3. A self-confirmatory process

Summarizing the results outlined above, the [BLINDED FOR PEER REVIEW] training appeared to lead to a number of effects the occurrence of which depended on a variety of influential factors and were not necessarily stimulated by the mindfulness meditation practice, but by additional activities (e.g. group exchange) included in the intervention. As far as the meditation practice is concerned, two key findings are striking: on the one hand, the conducted interviews provide evidence that the [BLINDED FOR PEER REVIEW] training led to reporting more differentiated observation of inner states and processes; on the other hand, this observation was likely to have taken place within a set of subjective theories, including expectations toward and intentions behind the mindfulness practice, which influence the training evaluation, experienced outcomes and their transfer to specific domains of action. In what follows, we will argue that the interview material does not provide evidence that the BiNKA training stimulated reflexive processes on these theories, including increased awareness for

the latter. Instead, the mindfulness practice seems to function as a process in which attendees feel confirmed about these theories, and, depending on their expectations of what the practice should do, find tools to further pursue their (varying) intentions behind the practice.

A fundamental subjective theory from a mindfulness research perspective was that of mindfulness as a tool serving a particular purpose that "did" or "did not work" in regard to that purpose. They often showed clear expectations of what the practice should do. The relation between the attendees' expectations and actual 'outcome' then served as a grid for course evaluation, which in turn also decided upon further engagement with the practice. On the one hand, several attendees reported they did not perform or continue to practice certain course exercises, because they disliked or felt incapable to pursue them when the expected results did not occur. For example, some participants believed the practice of meditation should switch off thinking and lead to a feeling of relaxation. However, when they realized in practice that they were still thinking and feeling excited, this led to disappointment:

"I had the feeling that it didn't work properly. I mean that my mind immediately started wandering. Sometimes I had the feeling that my mind jumped from one topic to another every few seconds […]. I thought that it should or must work in a certain manner and observed that it didn't work this way for me". IG1STU10

On the other hand, the training was evaluated positively where the experiences matched with the expectations toward the practice. IG1STU2, for instance, expected to "be in the moment. To be with yourself. To reach clarity […] why things happen the way they happen and then change my behavior accordingly" and reported that it was exactly what she experienced during the training. Interestingly, no participant seemed to question her expectations toward the practice as a result of the course experience.

Another observation was that participants expressed explicit intentions behind their course participation. Many participants stated, for example, that they attended the course with the expectation of a personal benefit, for example in forms of stress reduction. Several attendees, furthermore, stated that they expected to receive hands-on tools that could easily and time-effectively be adopted to help them to become more efficient, e.g. in their work life. One participant (KG1AN1) described mindfulness as "another tool for his toolbox", which allows him to get relaxed within a short amount of time and to be ready for action immediately afterwards. What is striking about this observation is that these intentions partly determined the domain in which people experienced mindfulness-related effects. Again, IG1STU2 exemplifies this: Her illustrations for increased self-awareness and reduced reactivity were predominantly related to her family life. As a matter of fact, it was the search for parenting skills that led her to participate in the training in the first place:

„Maybe I quickly explain why I decided to participate in the course in the first place. I have two children and it was parenting that brought me to the topic of mindfulness. I did not know about the methods and hoped to learn about them within the course […] in order to integrate them in my daily life" [IG1STU2].

Again, the training did not seem to make people more aware of their underlying intentions or stimulate reflections on the instrumental understanding of mindfulness.

Importantly, factors like those mentioned above did not only influence the course experience as such, but also co-determined the training's consumption-related effects. Participants who considered their consumer behavior to be morally problematic, but thought to have ignored its impacts, tended to report increased remorse due to the expanded consciousness about their attitude-behavior gap:

"Int: Did you recognize any changes with regard to your eating habits or your purchasing behavior with regard to clothes during the last weeks? P: Yes, I think so. Especially regarding clothes I started to reflect more. And I recognize that I have a guilty conscience more often". IG2AN12

In contrast, those people stating that one should not feel bad when occasionally consuming against their attitudes yet had experienced feelings of guilt reported a reduction of these feelings due to course participation:

"The course participation probably gave me more serenity in this matter. Because I do tend to have a guilty conscience when I'm aware that I can't act in accordance with my own moral standards. In this regard […], the course helped me to accept that". IG1STU2

Interestingly, the interview material does not provide evidence that the training somehow affected or at least raised awareness for consumption-related subjective theories that have been shown to hinder sustainable consumption. We found three examples for this absent effect.

Firstly, scholars on sustainable consumption have shown that a feeling of self-efficacy and self-beliefs depicting one's actions as meaningful and impactful are conducive for consuming sustainably (Geiger et al. 2017; Landry et al. 2018). In contrast to the idea that mindfulness training might lead to counter heteronomy, low self-esteem and limiting self-beliefs (Levesque and Brown, 2007), interviewees did not show any sign of changing the perception of their role as consumers, but rather intensified and more strongly embodied (in the sense of feeling it) how they thought about it in the first place. For example, IG1AN6 is of the opinion that "bigger players are too powerful as if you could change that [the production system]" and describes himself as a "forced unsustainable consumer". Throughout the data material, no case was found where people holding such perspectives prior to the training experienced changes over the course of the practice.

Rationalization and neutralization processes regarding seemingly unsustainable consumption choices are the second case of hindering subjective theories. In the majority of interviews, we identified discursive patterns in the interview data known from the literature that indicated such processes (e.g. Chatzidakis et al. 2007; Frank 2017):

"I would like to consume more sustainably […] I would really prefer if people wouldn't treat animals just as products to satisfy their needs […], but to afford sustainability one has to earn accordingly well". IG2AN9

Thirdly, interviewees often speak in hypothetical sentences when reflecting their intentions to consume more sustainably (Herbrik and Kanter 2016), e.g.:

"Personally I almost have to accept that I have to buy bad stuff [] Even if I spend more money, the T-Shirts are still produced in Bangladesh […], okay maybe I would have a choice […], but then the price is for me personally too high […]. Regarding my conscience I would really love to buy a fair-trade T-Shirt, it's not that I don't care […] but it's almost as if you were forced to buy the bad stuff". IG1AN12

None of the attendees reported on insights into the underlying psychological mechanisms prompting such coping strategies.

In sum, the findings suggest that the overall course experience was generally in line with or even stabilized preexisting subjective theories, including expectations toward and intentions behind course participation. Depending on these theories, participants evaluated and benefited from the [BLINDED FOR PEER REVIEW] training, yet they would neither notice nor change these perspectives. Therefore, we conclude that the observed effects might be well explained as a self-confirmatory process. While the training could indeed increase the awareness for inner states and processes, the way individuals interpreted and acted upon this awareness depended on the 'mindset' that preceded the participation. In this sense, practicing mindfulness supported sustainable consumer behaviors if the practitioner was willing to consume in a more sustainable way in the first place.

5. Discussion

Coming back to our initial research question as to how participants' perceive and experience their participation in the [BLINDED FOR PEER REVIEW] training and its relation to their consumer behavior, we came to ambiguous results. On the one hand, the vast majority of course participants reported mindfulness-related effects, in particular increased self-awareness and the development of ethical virtues. They also reported increased well-being, often as a result of their improved ability to cope with unpleasant sensations. In about a third of all participants, these effects were also (at least occasionally) transferred to the topic of sustainability, even though mostly remaining on a pre-behavioral level (see figure 1). This is evidence that mindfulness-practice carries a potential to positively impact consumer habits among individuals. Nevertheless, it must be taken into account that consumer behavior is often strongly influenced by habits embedded into economic, cultural, and social circumstances and adapted over the course of several years (Di Giulio et al. 2014; Klöckner and Matthies 2004; Southerton 2013). In light of this, one should, perhaps, not have exaggerated expectations about what an 8-week training course aimed at cultivating self-awareness can actually change, especially in light of the fact that mindfulness is traditionally seen as a practice that unfolds and develops over a long period of time.

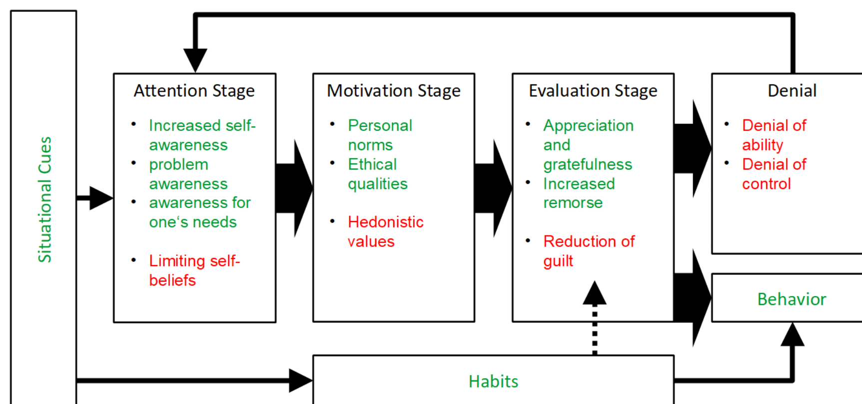

Figure 1: Consumption-related effects of the [BLINDED FOR PEER REVIEW] training according to the normative decision-making model (Klöckner and Matthies 2004).

Additionally, we also found that effects on consumer behavior were, by no means, compelling, on average, and there may have been at least three reasons for this: Firstly, we found that the [BLINDED FOR PEER REVIEW] training was experienced very differently from one person to another. In other words, there are a series of factors that co-determine the individual experience and hence experienced effects of the practices, which suggests that no effect whatsoever can be guaranteed. Secondly, although we observed effects in one domain (e.g. increased self-awareness or compassion to family members), individuals do not necessarily transfer these learnings to other domains of action, e.g. sustainable consumption. Thirdly, our training did not seem to influence participants' subjective theories, about themselves, mindfulness in general or sustainable consumption. Instead, it seemed that the training confirmed individuals' beliefs in their subjective theories or at least did not raise awareness or make participants reflect more upon them.

Overall, we conclude that a short-term mindfulness practice is not the new miracle cure against unsustainable consumption, even though some of the literature might suggest that. On the one hand, as Stanszus et al. (2019) argued elsewhere, the practice might, in fact, be a promising approach to promote conscious and deliberate consumer choices for people already holding sustainability-oriented values and the intention to act accordingly. On the other hand, the self-confirmatory potential of this particular intervention might also carry a risk of stabilizing unsustainable behavior and relieving individuals from a bad conscience when hedonistic values are prioritized. Individual actors and organizations intending to promote sustainable consumption through mindfulness should hence keep the adverse potential of the practice in mind when developing new programs.

This general risk notwithstanding, our results also suggest that mindfulness practice might be a promising complement within Education for Sustainable Development (ESD) and Education for Sustainable Consumption (ESC), especially when it targets individuals who are already willing to establish more sustainable consumption patterns. Again, three reasons support this claim.

Firstly, the training did increase participants' self-awareness, i.e. their awareness for inner states and processes. Among other things, self-awareness has been suggested by the UNESCO (2017) as a key competency for sustainable development, hence making it a desirable learning outcome, in and of itself. In addition, this increased self-awareness appeared often be accompanied by an improved ability to deal with unpleasant experiences, resulting in increased well-being. The ability to deal with unpleasant experiences and thereby take care of oneself has been repeatedly suggested as an important competency for sustainable consumption (Hamann et al. 2016; Hunecke 2017) and sustainabililty-oriented behavior more generally (Brundiers and Wiek 2017) Given the results of our study, training individuals in mindfulness practice could be a way to strengthen their ability to take care of themselves, bearing in mind that this ability does not automatically lead toward sustainable consumption.

As mentioned, an important limitation of the training effects was that attendees did not transfer mindfulness-related learnings to other domains of action, such as consumer behavior. However – and this is the second reason why mindfulness practice might be a promising complement within ESD/ESC – consumption-related learning activities may benefit by embedding mindfulness practices within the context of sustainable consumption. In particular, these practices might be useful to deepen reflections within experiential learning activities related to the topic, for example, when mindfulness would be integrated within self-experience-based learning (Frank and Stanszus 2019). While the [BLINDED FOR PEER REVIEW] training was an attempt to combine formal mindfulness practice with more conventional ESC elements, the latter were introduced very subtly and often not even recognized as such by the participants. Moreover, mindfulness practices and cognitive approaches toward the topic were not explicitly intertwined. Directly linking the embodied experience of mindfulness practice with theoretical inquiry within experiential learning settings could facilitate the transfer of mindfulness-related learnings (e.g. self-awareness or ethical qualities) to the domain of sustainable consumption, potentially compensating for the heavily cognitive, discursive and intellectual learning typically characteristic within ESC. In fact, this has already been suggested by other scholars in the past (e.g. Hunecke 2017; Murray 2011), and our study provides some empirical insights into why this combination might indeed be promising.

Thirdly, integrating mindfulness practice within broader educational settings would also create opportunities for participants explicitly to reflect upon subjective theories, how these subjective theories and biases may influence their practice experience, as well as their Interpretation of possible effects. Especially in higher education, these issues could even be explored by the application of scientific methods, e.g. allowing learners to generate an inter-subjective understanding of their own experiences. First attempts to apply such a combined learning of purely embodied subjective experience and scientific inquiry have shown to be promising in terms of procedures aimed at the development of reflection upon subjective theories ([BLINDED FOR PEER REVIEW]). Such approaches may have potential for self-reflection that supplements traditional mindfulness practice ([BLINDED FOR PEER REVIEW]).

6. Limitations and research outlook

We conclude by discussing the limitations of our study and suggesting lines of future research helping to address these limitations. We will not go into those limitations resulting from our combined qualitative methods approach, since they have been extensively elaborated elsewhere ([BLINDED FOR PEER REVIEW]). The same article also covers general concerns about qualitative research on mindfulness practice, so that we will leave this more general discussion aside, too. Instead, our focus will lie on the results provided and discussed in the previous sections.

One important concern relates to the generalizability of our findings, given the particularities of the intervention program itself, the instructors and the target groups. For example, the specific role of the teachers delivering the [BLINDED FOR PEER REVIEW] training remains unclear in terms of influencing, among other things in regard to how the instructors' own subjective theories on mindfulness (and consumption) may have affected the attendees' course experience. Future research could focus more strongly on the under-explored dependency of practice experience on the part of the teachers, especially in the context of sustainable consumption. At the same time, the very fact that this question arises corroborates an important part of our findings, namely that the perception, experience, and interpretation of a mindfulness practice is co-determined on a variety of personal and contextual factors and by no means a uniform experience for everyone. In particular, these factors can affect the attendees' willingness to engage with (certain elements of) the practice in the first place.

Related to the issues above, is our inability clearly to link consumption-related effects to the mindfulness elements of our intervention. As outlined in the results section, some participants did not explain their described effects as a result of the mindfulness meditation, but rather attributed them to the more cognitive-discursive elements of the training (e.g. group discussions on consumption). In fact, this lack of specificity of mindfulness elements is shared with the majority of current MBI studies (van Dam et al. 2018): MBIs not only include mindfulness instructions but also a variety of non-meditative aspects, such as keeping diaries, in-class discussions of meditation experiences and verbal input from the teachers, including expressions of attitudes, values, competence, kindness and support. Given this combination of elements, it is likely that numerous factors reciprocally influence each other and shape the way participants make sense of singular experiences. Thus, effects cannot clearly be attributed to the meditation alone, but need to be seen as a result of the MBI as a whole. Nevertheless, we have already noted that participants primarily reported mindfulness-related effects as a result of the training. Furthermore, we explicitly recommended attendees to combine mindfulness practice with experiential learning of sustainable consumption. Instead of isolating particular effects, we would rather suggest that future research more strongly examine the potential of such combined learning activities and compare such programs to more isolated approaches (only mindfulness or only theoretical work).

One additional methodical shortcoming of our study was its exclusive reliance on self-reports. This is problematic for at least four reasons: Firstly, studies have repeatedly emphasized that individuals are unreliable when it comes to estimating their own personal level of mindfulness (e.g. Grossman, 2008, 2018). Secondly, many people have a tendency to maintain a self-image as positive, admirable,

honorable and ethical individuals (e.g. Bandura 1999; Jordan and Monin 2008). Thirdly, behaving in a sustainable way has become increasingly socially desirable (Ekardt 2017). Fourthly, effects of expectancy bias and social desirability may also have influenced respondents' reports concerning effects on self-awareness, well-being, and ethical qualities: the mindfulness program, itself, generally announces such behavioral and attitudinal results to occur. As a result, course participants might have overemphasized both the mindfulness-related effects and the consumption-related effects within the interviews. We have attempted to counteract this problem by applying discourse analysis, which allowed us to more critically interpret individuals' statements in relation to prevailing ways of speaking about mindfulness and sustainable consumption. However, future research should consider including second-person and third-person methods (for example interviewing friends and relatives, observing actual consumer behavior) when studying the nexus between mindfulness and consumption.

Appendix: Demographic data of interview participants

No.	ID	Group	Frequency of participation	Partner	Status	Age	Gender
1	IG1AN1	IG	9,00	Company 1	Employee	32	male
2	IG1AN12	IG	7,00	Company 1	Employee	29	female
3	IG1STU10	IG	9,00	-	Student	30	female
4	IG2AN11	IG	8,00	Company 2	Employee	38	male
5	IG3AN10	IG	6,00	Company 3	Employee	40	female
6	IG3AN8	IG	8,00	Company 3	Employee	53	female
7	IG3STU12	IG	9,00	-	Student	35	female
8	IG3STU4	IG	9,00	-	Student	41	female
9	KG2AN12	CG	9,00	Company 2	Employee	29	female
10	KG2AN13*	CG	9,00	Company 2	Employee	27	male
11	KG2AN6	CG	9,00	Company 2	Employee	29	female
12	KG3STU9	CG	9,00	-	Student	27	male
13	IGSTUX**	IG	Demographic data lost				
14	IG1AN6	IG	9,00	Company 1	Employee	44	male
15	IG1STU2	IG	8,00	-	Student	36	female
16	IG2AN12	IG	7,00	Company 2	Employee	39	male
17	IG2AN4	IG	9,00	Company 2	Employee	33	female
18	IG2AN9	IG	7,00	Company 2	Employee	40	male
19	IG2STU8	IG	8,00	-	Student	30	female
20	IG3AN5	IG	6,00	Company 3	Employee	63	female
21	KG1AN1***	CG	3,00	Company 1	Employee	35	male
22	KG2AN3	CG	9,00	Company 2	Employee	37	female
23	KG3STU2	CG	9,00	-	Student	25	female
24	KG3STU3	CG	9,00	-	Student	29	male
25	KG2STU17	CG	9,00	-	Student	-****	female

Note: CG = (waiting list) control group. IG = Intervention group. KG**2**AN13 is a replacement for an ill interviewee. ** Values got lost. ***Interview not included in analysis due to course drop-out criteria ****Data not available.*

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