Sustainable consumption & Mindfulness practice

A proposed conceptual model and an empirical explorative study

Date: 18th August 2015
Student name: Melanie Studer
Student number Delft: 4130340
Student number Leiden: s1057898
Course code: 4413TRP30Y Thesis research project

Supervisors: 1st: Dr.ir. Jaco Quist
2nd: Dr. ir. Steven Flipse
3rd: Drs. Caroline Wehrmann





Universiteit Leiden



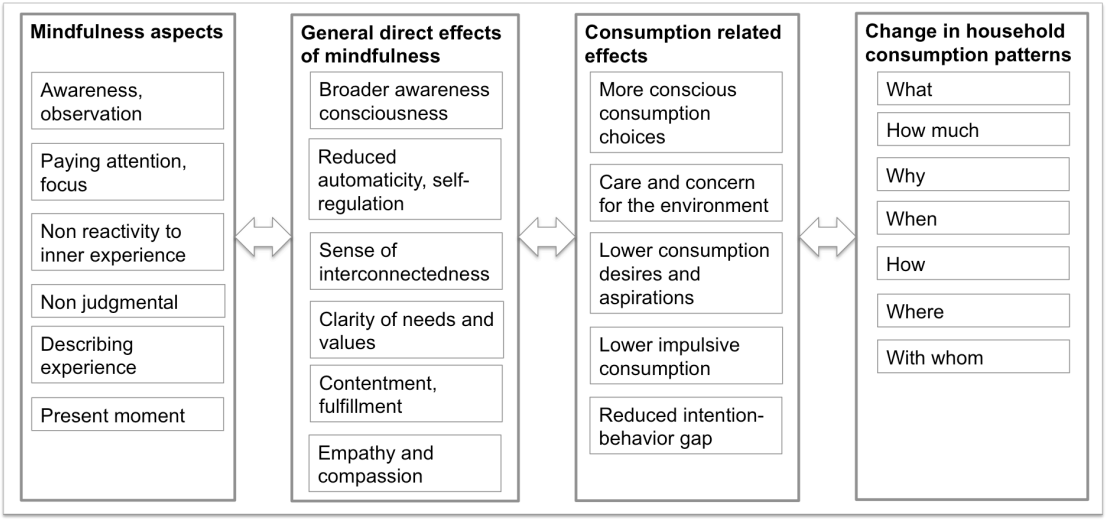
Executive summary

Rising global consumption levels are causing ecological as well as social damages. Sustainability advocators are increasingly asking how much is enough consumption for the wealthy and middle classes and how we can live a good life within ecological limits. Some scholars suggest the idea of a double dividend; i.e. that we can live better by consuming less. Theoretical as well as first empirical studies suggest that mindfulness may be a promising avenue for such a double dividend. Mindfulness, a concept rooted in Buddhism, refers to a receptive state of mind in which attention is brought to bear on what is occurring in the present.

Based on the premise that mindfulness may influence everyday life practice and its associated consumption, the objective of this research is twofold: 1) to conceptualize the link between mindfulness and household consumption, and 2) to empirically explore the potential effect of mindfulness on practitioners' consumption patterns. The main research question was: *How can mindfulness practice contribute to sustainable household consumption patterns within Western countries?* Sub questions are: 1) *How does mindfulness practice and household consumption patterns relate according to literature, experts and practitioners?* 2) *What effect (if any) does mindfulness practice have on practitioners' household consumption patterns?*

To answer these questions we adopted an explorative research approach and focused on describing and understanding the potential contribution of mindfulness to sustainable consumption rather than measuring it. In the first research phase, we developed a conceptual model on the relationship between mindfulness and consumption patterns; in this process we interviewed a set of scientific experts and a set of practitioners to improve our preliminary model, which was based on literature. In the second research phase, we interviewed ten mindfulness practitioners in Thich Nhat Hanh'ts tradition on the effect (if any) mindfulness had on their everyday life practices and in particular their eating, mobility and living habits. This resulted in rich data from which on one hand we extracted factual changes in consumption patterns and on the other hand tested our conceptual model.

The first research phase resulted in the following conceptual model:



This models shows that a number of interrelated direct and indirect effects of mindfulness may influence consumption patterns. The direct effects include broader awareness and consciousness, reduced automaticity, self-regulation, a sense of interconnectedness, clarity of needs and values, contentment, fulfillment, empathy and compassion. The indirect effects include more conscious consumption choices, care and concern for the environment, lower consumption desires and aspirations, lower impulsive consumption and a reduced intention-behavior gap.

The second research phase finds that mindfulness in the Thich Nhat Hanh's tradition changes consumption patterns in different ways. Interviewees' general lifestyle shifted towards sets of activities that can be viewed as complementary with a mindful way of living, such as spiritual activities, meditation, me-time, and self-care activities. They also shifted away from sets of activities that can be viewed as hindering a mindful way of living, like hurrying, cramming one's agenda, multi-tasking, and consuming media unselectively. In terms of eating, mobility and living habits, a general pattern was that mindfulness triggered more changes in eating habits than in mobility and living habits. The changes in eating habits seem related to the integration of both new meanings - related to for example vegetarian, healthy, organic food, the activity of cooking - and new skills - like being aware of the impact of food on one's body, eating slower, chewing consciously, savoring more, eating less on craving. The research also finds that the effects of mindfulness on consumption patterns are likely to be dependent on how mindfulness is interpreted and practiced. Overall, the changes in consumption patterns and especially in eating habits seem to be positive in terms of sustainability, though signs of possible negative influences were also found.

Several characteristics of the research sample may have influenced the results. For instance, the research sample consisted of rather enthusiastic and committed mindfulness practitioners who were rather highly educated and spiritual. Moreover Thich Nhat Hanh's mindfulness tradition encompasses Buddhist teachings and reflections on the Earth and the protection of the environment. Thus this could have led to more sustainable results than compare to other mindfulness traditions. The results are also limited by the possible biases related to the self-report measurement method and to the particular interpretation and practice of mindfulness in Thich Nhat Hanh's tradition. The explorative and qualitative character of this research also limits the possibility to generalize the results beyond the research sample and to determine causality.

The research concludes that mindfulness may contribute to sustainable household consumption patterns within Western countries through two pathways; 'deliberate environmentalism', i.e. stimulating deliberate engagement in pro-environmental practices, and 'accidental environmentalism', i.e. decommodifying well-being and/or fostering less resource intensive lifestyles. However mindfulness may also negatively influence the environmental impact of consumption patterns. For instance, consumption may increase as mindfulness practitioners become more self-compassionate and decide to spend more on themselves or allow themselves to consume more. Another scenario of a possible increase in consumption is one where lifestyle changes related to mindfulness practice shift consumption impact to other domains. For example mindfulness may lead to less consumption of material goods, but result in more consumption through travelling. Further research is needed to assess how important these negative effects may be.

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Because I feel like this report and research would not have been possible without the help of all these people, this thesis is written in the "we" form.

Preface

This thesis encloses the result of my graduation project for the master degree of Industrial Ecology at Delft University of Technology and at the University of Leiden. It was inspired from my personal experience. After my father's sudden death and in search for meaning, inner peace and stability, I came to discover the practice of mindfulness. I would not say that it immediately changed my life nor that I excelled at it. But it did make me reconnect with my interest in sustainability and it did inspire me.

I felt more strongly than ever that environmental flourishing cannot be differentiated from human flourishing. As Thich Nhat Hanh (2009:78) would say: "If someone is not happy within herself, how can she help the environment?". Pondering on the question how can I live a happy, meaningful and sustainable life, I came to believe (and still believe) that mindfulness might be such a way. This very belief motivated me to further investigate the potential of mindfulness for sustainable consumption patterns.

I admit my hope was to prove positive. Hence, I had to detach myself from this hope in order to be able to do a scientifically sound research and not fall in the pitfall of proving or seeing what I wanted to see and overlooking limitations, downsides, etc. This process of detachment was difficult for me to do in a balanced way. I realize that in reality my mind was rather constantly switching between extremes; e.g. an enthusiastic and a skeptical view.

Besides the challenge to remain as objective as possible, another challenge was to deal with the line between my research and personal life which often became confusing. For example, whenever I would join a mindfulness practice gathering, I was not sure anymore whether this was for my research or for myself and I could not help restraining from observing others and making mental notes. My research was also at times personally confronting as it triggered, besides scientific reflections, numerous self-reflections.

A continuous confrontation was also my view on my own mindfulness practice. I was aware that theoretically one can research something without being an expert in practice. Yet, I disliked noticing how often I could be more mindful. That said, it was very useful to have some experience myself to carry out this research. First of all because mindfulness cannot be fully understood if not experienced. Secondly and because of this first point, it would have been more difficult to be accepted by participants as a researcher. Indeed, all the long-term practitioners I interviewed asked me whether I was practicing and mentioned I should experience it myself in order to research it.

It was also useful to be familiar with the mindfulness tradition that the research participants practiced (i.e. Thich Nhat Hanh tradition) as well as other traditions. This allowed me to understand the possible influences that were specific to the tradition. Indeed each tradition has slightly different interpretation of mindfulness and different tacit codes of conduct, social rules, etc. These in turn are likely to have some influence on the potential effect of mindfulness on consumption patterns.

On a scientific level, one could say that my personal involvement in this research had both positive and negative effects. On a personal level, however I can only say that I never imagined beforehand that my graduation project would have such an influence on my self-development. It broadened my horizon, made me discover alternatives ways of living and socializing and allowed me to meet new friends. I am very grateful I had the chance to do this research and hope it provides you with similar enthusiasm on the topic.

1 Introduction

1.1 Research background

While no consensual definition exists of Industrial Ecology (IE), it is commonly agreed that IE aims for an integrated approach to sustainability where a systems perspective and interdisciplinarity are central (Allenby & Graedel, 1993; Lifset & Graedel, 2002). A systems perspective is central to account for the interconnectedness within environmental issues but also to avoid solutions that merely shift problems in space and time or end-of-pipe solutions that do not tackle the cause of problems (Lifset & Graedel, 2002). Interdisciplinarity is central because of the complexity and multi-dimensional nature of sustainability issues (Lifset & Graedel, 2002).

Given those attributes, one understands that the Industrial Ecology perspective on sustainability should be based on both natural and social science and should look at the whole industrial system, i.e. at production and consumption activities. However, so far, IE has mainly focused on technology driven solutions to sustainability and on the production side of the industrial system, in contrast to the consumption side (Hertwich, 2005a; Tukker et al, 2010). IE has made much progress on improving the eco-efficiency of production systems and assessing the environmental impact associated with consumption and production. However, it has neglected research and improvements on consumption patterns and levels, and research on social innovations (Jackson, 2005; Tukker et al, 2008, Tukker et al, 2010). Yet, efforts and initiatives focused on eco-efficiency have important limitations.

Studies show that in most cases, the achieved reduction in resource use is not proportional to the increase in resource efficiency due to the so-called rebound effect of consumption (Scott, 2009). In some cases, eco-efficiency measures might even backfire and lead to an increase in consumption (Scott, 2009). Hence, eco-efficiency measures only provide quick fixes that at best slow down humankind's unsustainable trajectory and make the situation 'less bad' but not 'good' (Ehrenfeld, 2008). This limitation of the principle of eco-efficiency can clearly be seen with the fact that over the past decades, rising consumption levels have outpaced all efficiency gains (Fuchs, 2013). Besides that, eco-efficiency does not address problems of social justice and quality of life. Hence consumption oriented research and policies are essential for at least two reasons (Backhaus et al, 2012; Fuchs, 2013; Ehrenfeld, 2008; Hertwich, 2005b, Scott, 2009; Tukker et al, 2008): first, to provide satisfactory quality of life for all and social justice; second, to avoid rebound effects and to ensure absolute reduction, or at least stabilization, of environmental impact and resource consumption.

Many scholars have been researching the drivers of rising consumption levels (Mont & Plepys, 2008). Whereas it is certainly a complex issue, there seems to be agreement that it boils down to the economic paradigm in which we live. Our economic system, which underpins our entire society, from individual desires and choices to macro-political decisions and market dynamics (Uyterlinde et al, 2012), relies on continuous growth and consumption (Fedrigo & Hontelez, 2010; Fuchs, 2013; Jackson 2009; Mont & Plepys, 2008; Uyterlinde et al, 2012). Hence it supports social structures rooted in different psychological, social and institutional settings (e.g. advertisement, marketing, planned obsolescence, etc.) that push consumption levels ever higher and cultivate a consumer culture (Kasser, 2011; Jackson, 2009; Mont & Plepys, 2008).

The continuous growth paradigm is also criticized for being socially and psychologically damaging. Surely, it has significantly contributed to human development, access to health and education, economic and social stability and the provision of jobs (Jackson, 2009). However, it is failing now to make us happier and to provide for everyone's needs, including that of future generations (Jackson,

2009). The financial crisis of 2008 and the consequential European and global recession and debt crisis showed that the model even fails on economic grounds (Jackson, 2009; Uyterlinde et al, 2012).

Although scholars and policy-makers acknowledge the failures of the current economic system, the so-called 'growth dilemma' makes interventions difficult (Jackson, 2009). Indeed, while continuous growth is unsustainable, the stability of the current economic model structurally depends on growth. Without adequate growth, the system collapses (Jackson, 2009; Marks et al, 2013). Thus degrowth under the present conditions would be unstable and lead to unemployment, failing competitiveness and spiraling recession (Jackson, 2009; Marks et al, 2013).

Hence, to solve the growth dilemma and address the root causes of unsustainability, some call for a fundamental paradigm shift (Jackson, 2009). We need to redefine progress and prosperity, and gear the economy so that it provides capabilities for flourishing within planetary limits (Ehrenfeld, 2008; Jackson, 2009). We also need to conceive ways of shifting from a culture of limitless consumption to a culture with less materialistic aspirations (Backhaus et al, 2012; Mont & Plepys, 2008).

Sustainability advocators are increasingly asking how much is enough consumption for the wealthy and middle classes and some scholars suggest the idea of a double dividend; i.e. that we can live better by consuming less (Halweil et al, 2004; Jackson, 2005). At the institutional level, beyond growth discussions are already taking place. Furthermore, many bottom-up initiatives and social movements are emerging like Voluntary Simplicity, LOHAS (Lifestyle of Health and Sustainability) and Slow Living (Mont et al, 2013).

1.2 Problem statement

It is within this context of searching for approaches allowing human flourishing within ecological limits that we would like to explore the potential of mindfulness for sustainable consumption. Mindfulness, a concept rooted in Buddhism, refers to a receptive state of mind in which attention is brought to bear on what is occurring in the present (Kabat-Zinn, 2003). Theoretical as well as some first empirical studies suggest that mindfulness may be a promising avenue of research and policy for sustainability. Kasser & Brown (2005) identified mindfulness as a core factor in the correlation between personal well-being and ecological well-being.

In the last decades, mindfulness has gained popularity in the West, both as an object of research and as an everyday life practice (Chiesa & Malinowski, 2011). The introduction of mindfulness into the medical context played an important role in that as it contributed to scientific evidences of mindfulness' health and well-being benefits (Chiesa & Malinowski, 2011). Nowadays, mindfulness programs and trainings are applied in a wide range of contexts including schools, businesses, prisons, hospitals, veteran centers and the military (Sun, 2014). Moreover, more and more individuals and institutions see mindfulness as a form of mind training, just as important as physical exercise (Puddicombe, 2010).

A booming literature growth, both in academia and in popular writing, follows from this increasing interest in mindfulness. In academia, mindfulness is covered most extensively in the field of psychology and neuroscience. However, it is also emerging in some discourses within other fields such as healthcare, education, business management and sustainability. Whereas mindfulness has not been studied yet in the field of Industrial Ecology, in 2014, it has made its way to the Journal of Ecological Economics (Ericson et al, 2014), a journal closely related to Industrial Ecology research. Ericson et al. (2014:78) conclude "there is much we do not know and more research is needed for instance on the effect of mindfulness related to sustainability, on testing causality and on exploring long term consequences in terms of environmental behavior, political activity and lifestyle".

It is commonly agreed that mindfulness can be learned and practiced by anyone (Kabat-Zinn, 2003; Puddicombe, 2012). In other words, everyone has the seed of mindfulness within himself, all it needs is some watering (practice) to grow (Kabat-Zinn, 2003; Puddicombe, 2012). A great number of narratives suggest that mindfulness practice can have a profound impact on people's life and well-being (Puddicombe, 2012). Practitioners typically refer to their life 'before' and 'after' mindfulness or to mindfulness as 'learning how to live' and 'experiencing life in new way' (Puddicombe, 2012). Recent research also shows that mindfulness may change the structure of our brain and influence our genes (Davidson et al, 2003; Kaliman et al, 2014). Hence, the premise of this current research is that mindfulness may influence everyday life practices and their associated consumption, and therefore is worthy of study for approaches to sustainable consumption patterns.

This research is connected to the Green Lifestyles, Alternative Models and Upscaling Regional Sustainability (GLAMURS) project, which is part of the European Commission's 7th Framework Program. The overall aim of this project is to develop a theoretically-based and empirically-grounded understanding of the main obstacles and prospects for transitions to sustainable lifestyles and a green economy in Europe, as well as of the most effective means to support and speed them up. The call states explicitly that for transitions to be possible there is a need to address the demand side, re-evaluate growth models and to find appropriate ways to produce lifestyle changes and economic paradigm shifts. The result will be the development, testing and assessing of several integrated pathways for transitions to a low-carbon Europe.

1.3 Research purpose and questions

The objective of this research is twofold: 1) to conceptualize the link between mindfulness and household consumption, and 2) to empirically explore the potential effect of mindfulness on practitioners' consumption patterns.

The main research question is: *How can mindfulness practice contribute to sustainable household consumption patterns within Western countries?*

Sub questions include:

1. *How does mindfulness practice and household consumption patterns relate according to literature, experts and practitioners?*

2. *What effect (if any) does mindfulness practice have on practitioners' household consumption patterns?*

To achieve the research objectives and to answer the research questions, a two-stage research approach was taken. The first stage consisted of developing a conceptual model based on literature and expert interviews (first research objective). In the second stage, interviews of mindfulness practitioners were conducted in order to empirically explore through self-reporting the effect of mindfulness practice on household consumption patterns (second research objective).

1.4 Report structure

This report is structured as follows: This introductory chapter is followed by a chapter introducing the central concepts of this thesis, namely consumption, well-being and mindfulness. Chapter 3 introduces the theoretical approach taken in this research, namely a social practice approach. Chapter 4 presents the methodology used to develop a conceptual model based on literature and member validation; and to collect and analyze empirical data on the effect of mindfulness on consumption patterns. Chapter 5 presents the conceptualization of the link between mindfulness and sustainable household consumption. Chapter 6 presents the empirical exploration of the effect

of mindfulness on consumption patterns through interviews with mindfulness practitioners. Chapter 7 discusses the results and the research limitations and gives recommendations for further research. Finally, chapter 8 concludes this research by answering the research questions.

2 Introducing relevant concepts

In this chapter, we introduce the core concepts of this research; namely sustainable consumption (section 2.1), well-being (section 2.2) and mindfulness (section 2.3).

2.1 Sustainable consumption

The Agenda 21 for sustainable development has identified the North's (or the global affluent consumer class's) unsustainable consumption patterns as one of the key driving forces behind the World's unsustainable development (Lorek & Spangenberg, 2001). We will briefly discuss here why sustainable consumption is on the research and policy agenda (paragraph 2.1.1) and how it is defined (paragraph 2.1.2).

2.1.1 The need for sustainable consumption patterns

Over time, the energy and material intensity of our lives has increased to a point where today we are collectively living beyond the Earth's carrying capacity (Rockström et al, 2009; WWF, 2010). We are using resources (e.g. minerals, land, clean water) 30% faster than they can replenish and we are emitting more pollution than our atmosphere, lithosphere and hydrosphere can deal with (Rockström et al, 2009; WWF, 2010).

Our current consumption patterns do not only challenge our future in terms of resource availability and health of the natural environment; they also challenge global equity and quality of life for all (Backhaus et al, 2012; Halweil et al, 2004; Rockström et al, 2009; UNEP, 2011a). Large and growing differences in resource consumption and emission levels exist within and between countries (Backhaus et al, 2012; Halweil et al, 2004; Rockström et al, 2009). The world's 20% wealthiest consume nearly 75% of natural resources (Halweil et al, 2004). In many developing countries, consumption is insufficient to meet the basic needs of food, shelter, health and safety (UNEP, 2011a). In contrast in developed countries, consumption already largely surpasses basic human needs. Consumption levels have multiplied six-fold since the 1960s and continues to rise (Neuvonen et al, 2014). While this increase in consumption creates social injustice, there is more and more evidence that it also is not making us any happier (Jackson, 2009). This collection of facts suggests that the rise in consumption is all together socially damaging (Jackson, 2009).

To make it even worse, analysis of macro-trends suggests that the sustainability consumption issue is likely to aggravate in the future if conditions do not change (Backhaus et al, 2012). Indeed, several macro trends, like population growth, the increase in social and economic polarization, the spread of Western lifestyles, and the increase in global trade, are driving further the unsustainability of consumption and no other macro-trend seems to counterforce them (Backhaus et al, 2012; Michaelis, 2003).

Since the World Summit on Sustainable Development in Johannesburg in 2002, sustainable consumption has been on the international policy agenda and ongoing discussions on approaches to foster sustainable consumption patterns have taken place (Quist et al, 2013; Tukker et al, 2006). International organizations (such as the United Nations and the OECD), as well as governmental bodies (e.g. the Nordic Council of Ministers, UK's sustainable development commission) and the European Union have created research groups, commissions, task forces and calls for action. The issue of sustainable consumption is also gaining attention in the Industrial Ecology community

(Hertwich, 2005a; Tukker et al, 2010). For instance, a special issue was dedicated to consumption in the Journal of Industrial Ecology in 2005. Key findings of this body of research is that in developed countries: food, mobility and housing account for 70 to 80% of the environmental impact of consumption (Lorek & Spangenberg, 2001; Tukker et al, 2010). Hence they should be the priority areas of intervention policies.

More recent research has found that 'ordinary' daily consumption – like heating, electricity, mobility, food, insurances, school fees, mortgages, etc. - represents about 80% of the average consumer's expenditures and the major share of our environmental footprint (Jackson, 2009). 'Ordinary' or inconspicuous consumption is typically hardly noticeable because to service efficiency in routine acts our brains creates automaticity. This represents a challenge for sustainable consumption as it can create a behavior-impact gap (Csutora, 2012). For instance, even if individuals make conscious efforts towards sustainable consumption choices, they often fail to reduce their overall ecological footprint significantly, as they are oblivious to their habitual consumption (Csutora, 2012). Hence, consumption policies should not merely focus on intervening in consumption decisions, but also on ordinary consumption (Jensen, 2007).

2.1.2 Defining sustainable consumption

The Oslo Symposium on Sustainable Consumption in 1994 defined sustainable consumption in line with the Bruntland definition of sustainable development as "the use of goods and services that respond to basic needs and foster a certain quality of life, while minimizing environmental harm to ourselves and future generations" (Lorek & Fuchs, 2011).

This definition formed the basis for the Sustainable Consumption Work Programme of the UN Commission on Sustainable Development (Lorek & Fuchs, 2011). It also formed the basis for numerous governmental and non-governmental meetings and publications on sustainable consumption (Lorek & Fuchs, 2011). However, two perspectives on how to reach sustainable consumption have developed (Lorek & Fuchs, 2011). These perspectives have been named 'weak sustainable consumption' and 'strong sustainable consumption'.

Weak sustainable consumption frames the issue of sustainable consumption as "politically, economically and technologically solvable within the context of existing institutions and power structures and continued economic growth" (Bailey et al, 2011: 683). Hence it is driven by market approaches and technological innovation and focuses on improving the efficiency of consumption (Fuchs, 2013; Lorek & Fuchs, 2011; Hobson, 2013). It endorses measures like dematerialization, eco-design, cradle-to-cradle, material substitution, pollution prevention, product end-of-life management, environmental taxation, environmental laws, product labeling and consumer information campaigns (Fuchs, 2013; Lorek & Fuchs, 2011). The end goal is continued economic growth alongside improved socio-ecological well-being (Hobson, 2013).

In contrast, *strong sustainable consumption* emphasizes the need of fundamental changes in consumption patterns and a reduction in overall resource consumption (Lorek & Fuchs, 2011; Hobson, 2013; Lorek & Spangenberg, 2014). It stresses questions not only of resource management, but also of rising material living standards, social coherence and the definition of prosperity. It focuses on systemic changes and for instance, on multi-level socio political transformation and a shift from current foci on 'growth' and 'the economy' to effective provision of well-being for all and non-material contributions to a 'good life' (Hobson, 2013; Lorek & Spangenberg, 2014). It posits that technological improvements are indispensable, but these must be complemented by structural changes, social innovations and sufficiency (rather than only efficiency) policy initiatives. It considers individuals not only as consumers, but also as citizens. Thus, *strong sustainable consumption* pays attention to activities like community works and social, non-commercial exchange of services (e.g.

neighborhood cooperatives, etc.). Further, it seeks to increase human well-being through the way time is used and social structures and instead of through material possession (Lorek & Fuchs, 2011).

Through a historical study of global sustainable consumption governance, Fuchs & Lorek (2005) show how *weak sustainable consumption* approach increased in popularity over time. Under the heading of '*Sustainable Consumption and Production'* (SCP), *weak sustainable consumption* achieved dominance in political and scientific contexts. For example, the World Summit on Sustainable Development in Johannesburg 2002 resulted in 'Marrakech Process to develop a 10 Year Framework of Programmes for Sustainable Consumption and Production' (Lorek & Fuchs, 2011). Sustainable Consumption and Production publications and projects tend to emphasize best practices in production and green purchasing (Lorek & Fuchs, 2011).

However, according to *strong sustainable consumption* advocates, the concept of *Sustainable Consumption and Production* falls short on bringing the needed changes to face today's ecological and social challenges (Lorek & Spangenberg, 2014). It is a greening approach for selected products and for a few lifestyle groups rather than a coherent vision for sustainable consumption (Lorek & Spangenberg, 2014). Therefore, Fedrigo & Hontelez (2010) renamed the *Sustainable Consumption and Production* concept 'Sustainable Consumer Procurement'. More generally, weak sustainable consumption governance is criticized for not allowing the absolute reduction of environmental impact, not addressing the problem of rebound effect and neglecting problems of social justice (e.g. inequality in resource consumption and pollution emissions) (Lorek & Fuchs, 2011). *Strong sustainable consumption* advocates believe that *weak sustainable consumption* is popular because it does not strongly contradict the current capitalistic economic system (Fuchs, 2013; Lorek & Spangenberg, 2014). Yet, due to the shortcomings of *weak sustainable consumption*, only *strong sustainable consumption* will allow a sustainable future.

Following a *strong sustainable consumption* approach, Lorek & Spangenberg (2014) defined sustainable consumption as consumption that achieves a high ratio of need fulfillment while minimizing resource use. They understand need fulfillment as equivalent to human well-being and take into account a broad spectrum of human needs such as those defined by Max-Neef et al. (1991), e.g. including not only physiological but also psychic and social needs. As such, sustainable consumption implies directing resource use towards where marginal utility is highest in contributing to human well-being or meeting human needs (Lorek & Spangenberg, 2014). For example, this marginal utility will be high when resource use fulfills basic needs like food, heat, shelter and safety. In contrast, the marginal utility can be expected to be lower, if the resource use is meant to acquire a second 10^{th} handbag, however, fairly and efficiently it might have been produced and traded. Such an interpretation of sustainable consumption also implies that a reduction in consumption levels involves those with the lowest marginal utility of consumption, e.g. the wealthy (Lorek & Spangenberg, 2014).

Finally, we can note that although the weak and strong dichotomy presents a starkly polarized view of approaches to sustainability, in reality, they often intersect and overlap depending upon the aims, methods, and desired outcomes being suggested (Hobson, 2013).

2.2 Well-being and its relationship to consumption and sustainability

In recent years and against the background of increasing criticism of the economic growth paradigm and the omnipresent consumer culture, the relationship between consumption, well-being and environmental impact has attracted a surge of interest and debate (Marks et al, 2013). Understanding this relationship is important for the transition towards sustainable consumption. Indeed, if sustainable consumption requires or is perceived to require a compromise in well-being or comfort from the part of the current generation, it will be difficult to implement (Lenzen & Cummisn,

2011; Marks et al, 2013; Zidansek, 2007). On the other hand, if we can show that unsustainable consumption patterns such as overconsumption in the West is hindering well-being, this would provide a strong argument for changes in consumption patterns (Marks et al, 2013; Zidansek, 2007). Research shows that the relationship between well-being, consumption and sustainability depends on how well-being is defined. Hence, we start by defining well-being (paragraph 2.2.1). We then discuss the relationship between consumption and well-being (paragraph 2.2.2) as well as the relationship between personal and ecological well-being (paragraph 2.2.3).

2.2.1 Defining well-being

Defining well-being is of course a debated area and a difficult task. Yet, some important distinctions in mainstream approaches to well-being are that between 'objective' and 'subjective'; and that between 'hedonic' and 'eudaimonic' dimensions (Newton, 2007).

Objective well-being captures the material and social attributes that are thought to contribute to an individual or a community's well-being e.g. housing, education, etc. 'Objective well-being' is often associated with 'quality of life' (Newton, 2007). In contrast, *subjective well-being* captures individuals' assessment of how much one likes the life one lives, or in Venhoeven's words (2008:2) "the overall appreciation of one's life-as-a-whole". The term 'subjective well-being' is often used interchangeably with 'happiness' and 'life satisfaction' (Newton, 2007). In this research, we refer to well-being as subjective well-being.

Under 'subjective well-being', two streams can be distinguished: 'hedonic' and 'eudaimonic' well-being. *Hedonic well-being* refers to pleasure, both physical (e.g. having a nice dinner) and cognitive (e.g. attaining a goal) (Ryan & Deci, 2001; Venhoeven et al, 2013). It refers to the experience of positive affect and the absence of pain and suffering. In contrast, *eudaimonic well-being* refers to living well or leading a life well lived, which involves actively striving for what is intrinsically worthwhile to human beings. This includes realizing one's full potential (e.g. self-realisation, flourishing) and achieving a sense of purpose and meaning in life (Ryan & Deci, 2001; Venhoeven et al, 2013). Hedonic well-being can lead but does not necessarily lead to eudaimonic well-being, and vice versa (Ryan & Deci, 2001). For example, drinking a beer might be very pleasant but does not necessarily lead to a more meaningful life. On the other hand, a certain activity or process like grieving might not be pleasant but may give purpose in life.

An ancient and still ongoing debate exists on these two approaches to well-being (see for example Ryan & Deci, 2001). We will not enter this debate, we will only note that in general eudaimonic well-being is seen as superior as it allows human flourishing at an individual and a collective level. Many philosophers, religious masters, and visionaries, from both the East and West and from ancient and present times, believe that pursuing a hedonic life of pleasure and pain avoidance diverts people from living a meaningful life. The emergent field of positive psychology (which defines itself as the science of well-being) also denigrates hedonism and has taken a stance for eudaimonia for three reasons (Seligman, 2012). First, hedonic well-being is largely heritable so there is not much room for actions or interventions. Second, one habituates to pleasure and sources of pleasure and thus to remain happy, one needs more and more pleasure givers. This hedonic treadmill phenomenon makes the pursuit of pleasure alone an inappropriate path for long-term well-being or life satisfaction. The third drawback of hedonism is that it is not malleable. It can be produced so differently that a solel focus on hedonic well-being cannot reliably lead to well-being.

2.2.2 Well-being & consumption

Consumption is often seen as positive for well-being. This comes from the fact that consumption does play an essential role for human development as it allows us to fulfill our basic needs, for instance for, food, shelter and health (UNEP, 2011). Increased material consumption has led to

sweeping improvement of our living standards and quality of life and alleviation of poverty of millions of people (Halweil et al, 2004). However, while consumption is certainly a necessary component for well-being, material consumption and well-being are only linearly correlated up to a certain threshold (Scott, 2009; UNEP, 2011). Once basic needs are met, further consumption contributes little or even not at all to our happiness (Scott, 2009). This is why reported life-satisfaction has barely changed in the last thirty years although consumer expenditure has more than doubled (Jackson, 2005).

Many studies have researched what determines well-being and happiness (see Mont et al, 2013 for a review). They all point out other factors than material affluence, like health, social interactions, relationships, education and leisure time, are most determinant. In other words, the most important sources of life satisfaction are in nature nonmaterial. In fact, research even shows that happier people value love more than money (Diener & Oishi, 2000) and that material aspirations correlate negatively with happiness and life satisfaction (see Veenhoven, 2004 for a review). People who pursue materialistic things, like products and money, typically invest less effort and time in the pursuit of activities known to be more fulfilling and meaningful like personal growth, social relationships, leisure and participation in social communities (Venhoeven et al, 2013).

Yet in spite of that, our current economies and societies are built on the assumption that consumption equals well-being (Backhaus et al, 2012; Kasser, 2011; Jackson, 2005; UNEP, 2011; Scott, 2009). As a result, many people continuously pursue higher incomes and levels of material standards (Mont et al, 2013; Scott, 2009) and a strong consumer culture dominates. This consumer culture amplifies humans in their role of consumers rather than citizens and conveys the message that we can purchase happiness (Kasser, 2011). It uses all manners of attention-getting strategies to keep our attention focused outwards and offers little encouragement for directing attention inwards and for discovering our inner sources of joy and well-being (Rosenberg, 2004). As Kasser (2011) put it "life is meaningful and people are successful to the extent they have money, possessions and the right image". The consumer culture reduces human beings to insatiable consumers with infinite desire for material goods and services (Jackson, 2009). Authors such as Maslow (1943) and Max-Neef et al. (1991) however, have proved that humans have a limited number of basic needs and only few needs require material consumption. Yet consumerism is superficially attractive for the individual as it fills the 'empty self' (Ehrenfeld, 2008; Jackson, 2009; Rosenberg, 2004). Material goods can provide hedonic pleasure, status, social acceptance and identification with a particular group (Rosenberg, 2004). However, according to Kasser (2011:), "the consumer culture has created more unhappiness, depression, loneliness, and stress than happiness, fulfillment, and lasting contentment".

2.2.3 Well-being & sustainability

Ecological sustainability is sometimes portrayed as conflicting with the pursuit of personal well-being. As long as this perception is held, "individuals will be faced with tough choices about how to live because while the majority of the general public wants a safe and healthy environment, it also wants a happy life" (Brown & Kasser, 2005:349). Yet several studies point out that ecological well-being and personal well-being are compatible. Venhoeven et al. (2013) for instance found that the effect of pro-environmental behavior on personal well-being depends on whether the focus is on short-term hedonic well-being (i.e. positive emotions and pleasure) or long-term eudaimonic well-being (i.e. meaning and purpose in life). Material and energy intensive lifestyle might contribute to comfort, convenience and hedonic well-being all together (Venhoeven et al, 2013). However, as discussed in section 2.2.1, material affluence does not provide for meaning in life and thus can detract from eudaimonic well-being (Venhoeven et al, 2013). In contrast, living ecologically can increase eudaimonic well-being if people see it as the right thing to do and do it from their own free will (Venhoeven et al, 2013). The challenge however, is to convince people that living ecologically is the

right way to live and to stimulate people to voluntarily choose such a lifestyle (Venhoeven et al, 2013).

The relationship between ecological sustainability and happiness has also been studied at the national level. Zidansek (2007) found that happier countries correlate with countries scoring high on ecological sustainability. However, correlation does not mean causality and it could be that common underlying socioeconomic or demographic variables such as gross domestic product or employment explain the correlation (Lenzen & Cummins, 2011). While we cannot infer any causal conclusion between ecological sustainability and happiness, the Happy Planet Index 2012 report claims that "it is possible to live long, happy lives with a much smaller ecological footprint" (Abdallah et al, 2012:3). So it seems at least that no trade-off between happiness and ecological sustainability exist.

2.3 Mindfulness and its relationship to well-being, consumption and sustainability

Mindfulness is defined, conceptualized and measured in very different ways (Baer et al, 2006; Chiesa, 2012; Dorjee, 2010). Hence it is useful to define mindfulness in this study (paragraph 2.3.1). Moreover, it is useful to understand its relationship to well-being (paragraph 2.3.2) as this research takes as a given the benefits of mindfulness for well-being. Indeed, a wealth of literature, including experimental and longitudinal studies, documents these positive consequences. Finally, since the focus of this study is the link between mindfulness and sustainable consumption, it is useful to discuss relevant research on the topic (paragraph 2.3.3).

2.3.1 Defining mindfulness

The concept and term 'mindfulness' originates from Buddhism, its essence, though, is also found in many other spiritual and religious practices and beliefs (Schmidt, 2011; Sharf et al, 2014; Purser & Millilo, 2015). The term mindfulness comes from the Pali – the middle indo-aryan language used in the earliest Buddhist scripture - word 'sati' (Schmidt, 2011; Sharf et al, 2014; Purser & Millilo, 2015). 'Sati' means full awareness of what is happening. It also means remembering to be aware of something (Schmidt, 2011; Sharf et al, 2014; Purser & Millilo, 2015). It refers to intentness, wakefulness and lucidity of mind (Schmidt, 2011). Mindfulness, however, is no longer defined as a purely Buddhist or spiritual concept. Indeed, it has been extracted from its Buddhist roots and brought to contemporary applications as a standalone concept (Kabat-Zinn, 2008; Schmidt, 2011).

In the West, Kabat-Zinn's (2003:145) definition of mindfulness is most widely cited: mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment". Kabat-Zinn played an influential role in introducing mindfulness into medicine as he founded the *Mindfulness-Based Stress Reduction* (MBSR) program, which was designed initially to assist people with pain and a range of conditions and life issues. To his definition, Kabat-Zinn (2003) commented that: "in some Asian languages, the word for 'mind' and the word for 'heart' are the same word. So when we hear the word 'mindfulness', we have to inwardly also hear 'heartfulness' in order to grasp it even as a concept, and especially as a way of being and seeing".

While the concept of mindfulness is deceptively simple, as Ivanivski & Malhi (2007:77) comment "mindfulness is an activity that can be described using words but that cannot be wholly captured by words as it is a subtle process that invokes nonverbal experiences". The Buddhist monk Gunaratana (2002:137) similarly states that words describing mindfulness are "only fingers pointing at the moon; they are not the moon itself". Both scholars and practitioners emphasize the need to experience mindfulness in order to understand it, rather than to merely intellectualize it.

Several scholars have attempted to operationalize the concept of mindfulness (e.g. Baer et al, 2006; Brown & Ryan, 2003; Bishop et al, 2004; Kabat-Zinn, 2003; Langer, 2000; Shapiro et al, 2006).

However, no consensual definition or operationalization of the concept of mindfulness exist (Baer et al, 2006; Bishop et al, 2004; Brown & Ryan, 2004; Chiesa, 2012; Dorjee, 2010). One interpretation that seems to be used in many empirical studies on the effect of mindfulness is that of Baer et al.'s (2006) because it represents a synthesis of several operationalization of the concept of mindfulness. Baer et al (2006) breaks down the construct of mindfulness into five facets, namely 1) awareness/observation, 2) paying attention/focus, 3) non reactivity to inner experience, 4) non judgmental, and 5) describing experience.

Mindfulness is sometimes confused with the term 'meditation'. Yet they are not the same. Meditation is a technique used to develop mindfulness (Kabat-Zinn; 2003; Puddicombe, 2010; Williams & Penman, 2011). Kabat-Zinn (2003) refers to meditation as the 'launching platform' or scaffolding used to cultivate a mindful way of being. Similarly, meditation and mindfulness expert, Puddicombe (2010), refers to meditation as the 'highway' or the easiest way to train mindfulness. We can note that many types of meditation exist and not all aim at mindfulness. For instance, some meditation practices aim at the awakening and alignment of chakras, which is not related to mindfulness. Mindfulness meditation is a formal practice of mindfulness, which typically focuses on the body, the mind, sensations and mental objects and uses the breath as an anchor (Kabat-Zinn; 2003; Puddicombe, 2010; Williams & Penman, 2011). Mindfulness however, can also be practiced informally in other activities such as mindful walking, eating, cleaning – in fact, anything happening in the present moment, including brushing one's teeth, taking a shower, talking on the phone, and working out at the gym (Brown & Ryan, 2004; Kabat-Zinn; 2003; Puddicombe, 2010; Williams & Penman, 2011).

Besides, mindfulness can be practiced with different approaches, techniques, and intentions (Chiesa & Malinowski, 2011; Dorjee, 2010). A general distinction made is between mindfulness practices as in modern Western secular mindfulness trainings and as in the Buddhist tradition (Chiesa & Malinowski, 2011; Dorjee, 2010; Williams & Kabat-Zinn, 2011; Purser & Millilo, 2015; Schmidt, 2011; Sharf, 2014). Modern Western secular mindfulness typically involves no explicit sense of ethics and mainly aims at health benefits such as stress reduction, concentration, etc. (Dorjee, 2010; Williams & Kabat-Zinn, 2011; Schmidt, 2011; Sharf, 2014; Sun, 2014). In contrast, in the Buddhist tradition, reaching insight and freeing oneself from suffering are the main end and motivation (Dorjee, 2010; Williams & Kabat-Zinn, 2011; Schmidt, 2011; Sharf,, 2014; Sun, 2014). Furthermore, ethical discernment is an inseparable part of development and application of Buddhist mindfulness (Dorjee, 2010; Williams & Kabat-Zinn, 2011; Sun, 2014).

The Buddhist tradition, in fact, distinguishes 'right mindfulness' from 'wrong mindfulness' (Dorjee, 2010; Purser & Millilo, 2015; Sun, 2014). According to Dorjee (2010), "this distinction is not moralistic: the issue is whether the quality of mindfulness is characterized by wholesome intentions and mental states that lead to peace, joy and human flourishing for others as well as oneself". As such, even a person committing a premeditated crime can be practicing mindfulness, albeit 'wrong mindfulness'. Some Buddhist-oriented practitioners and scholars are concerned about the use of mindfulness out of its Buddhist context as it may lead to purely instrumental ends as achieving more fame, success, power or money (Brown et al, 2007; de-Witt, 2011; Purser & Milillo, 2014). On the other hand, it has been suggested that the secularization of mindfulness contributed to its acceptability and increasing popularity in modern society (Dimidjian & Linehan, 2003; Williams & Kabat-Zinn, 2010; Sun, 2014).

Finally, we can add that the divide between secular and non-secular mindfulness is not impermeable. Indeed, most, if not all, secular mindfulness programs are inspired from experiences in Buddhist mindfulness. For example, Jon Kabat-Zinn, the founder of the *Mindfulness Based Stress Relief* course, is a long-term student of Zen Buddhism. Andy Puddicombe, the co-founder of *Get some Headspace*, a mindfulness smartphone app used by over a million people, served as a monk for ten years. Chade-

Meng Tan, the founder of Google's inhouse mindfulness program *Search Inside Yourself*, is also a Buddhist aspirant. Also, some people like Kabat-Zinn believe that once people start to practice (secular) mindfulness, they will eventually become interested in its Buddhist roots (Omega, 2012).

2.3.2 Mindfulness & well-being

Substantial empirical evidences point to the salutary effects of mindfulness. Research shows that a wandering mind is correlated with less happiness even when thinking about emotionally neutral topics (Brewer et al, 2011; Killingsworth & Gilbert, 2010). It also shows that people who are able to be in the 'here and now' are the happiest. Time lag analyses of experience sampling data suggest that mind wandering is a cause and not just the consequence, of unhappiness (Brown et al, 2009; Ericson et al, 2014).

The effect of mindfulness is also visible on individuals' vitality and health (both mental and physical): Mindfulness reduces stress, depression, anxiety, and memory loss (Brown & Ryan, 2003; Keng et al, 2011). It also helps emotion regulation and increases people's level of energy, ability to focus and concentrate, self-awareness, self-control, self-esteem, self-efficacy, self-acceptance, empathy and openness to experience (Brown & Ryan, 2003; Keng et al, 2011). Mindfulness also boosts the immune system; it slows down HIV progression, improves sleep, and reduces heart disease risk and a number of physical conditions, like chronic fatigue, irritable bowel syndrome, and psoriasis (Brown & Ryan, 2003; Davidson et al, 2003; Keng et al, 2011).

Neuroimaging also shows that mindfulness directly affects the brain functioning and physical structure (Davidson et al, 2003; Keng et al, 2011; Ivanovski et al, 2007). Mindfulness reduces amygdala reactivity, which is the part of the brain responsible for triggering fear and it increases prefrontal cortex activity, which helps regulate emotions (Davidson et al, 2003; Ivanovski et al, 2007). It also increases blood flow in the anterior cingulate cortex - a part of the brain that regulates self-control and focus -, and increases our working memory capacity which influence our ability to think (Davidson et al, 2003; Ivanovski et al, 2007)

We should note that while mindfulness contributes to well-being, it is not per se a bliss state. It can lead to unpleasant or even painful feelings and insights (Ericson et al, 2014). Indeed, it can give access to suppressed feelings and "ugly truths" about oneself and/or the world. Moreover, the positive effects of mindfulness may be slow to emerge and require effort and continued commitment to the practice (Ericson et al, 2014). Indeed, according to Kabat-Zinn (2013), mindfulness is like a muscle, and without exercise it will lose its strength. On the other hand, the more mindfulness is practiced, the easier and more natural it gets and the more noticeable changes will emerge (Kabatt-Zinn, 2013; Puddicombe, 2010).

2.3.3 Mindfulness & sustainability

Some first empirical studies (Amel et al, 2009; Brown & Kasser, 2005/2009; and Jacob et al, 2008) have found a correlation between mindfulness and pro-environmental behavior and lower ecological footprint. The study of Kasser & Brown (2009:40) also suggested that mindfulness might hold a double dividend and be a more productive approach to achieve happy and sustainable lifestyles than for instance, focusing on voluntary simplicity. They concluded their study comparing self-identified voluntary simplifiers and a control group on ecological footprint, dispositional mindfulness, value orientation and subjective well-being with: *"living more happily and more lightly on the Earth is not as much about whether people think of themselves as voluntary simplifiers, but instead is more about their inner life that is, whether they are living in a conscious, mindful way and with a set of values organized around intrinsic fulfillment."*

Although substantial empirical research is still lagging, the following associations with mindfulness lead us to believe mindfulness can contribute to ecological sustainability:

- *Broader awareness and consciousness:* Mindfulness is associated with greater awareness and better noticing and processing of information about what is happening around us (Amel et al, 2008).
- *Reduced automaticity:* Mindfulness is associated with a reduced automatic cognitive processing, which helps to act in a more flexible and objectively informed way and to break (unwanted) behavioral patterns (Langer, 1992; Rosenberg, 2004).
- *Connectedness with nature:* Mindfulness is believed to have the power to "reawaken our ecological unconsciousness", our awareness of the natural world. As such, we do not separate ourselves from nature, we identify with all of creation. We may notice that all things on Earth (including humans) are interconnected. Mindfulness is also believed to enhance the sensory impact of experiences in nature and that may strengthen nature connectedness as well (Howell et al, 2011; Wolsko & Lindberg, 2013).
- *Identification & clarification of needs, values, etc.:* Mindfulness is associated with an increased ability to recognize and clarify our needs, values, goals, inner conflict, existential concerns, interest, emotions, thoughts, etc. Mindfulness also makes it easier to distinguish between needs and wants, to make choices that are more congruent with one's needs, interests and values, and act in integrated ways (Brown & Ryan, 2003; Carmody et al, 2009; Ericson, et al, 2014; Shapiro et al, 2006).
- *Contentment / fulfillment:* Research shows that mindfulness helps to fulfill basic psychological needs and to decrease the discrepancy between desires and what we have. Thus it can be associated with contentment and fulfillment. (Brown et al, 2009; Rosenberg, 2004)
- *Empathy and compassion:* Mindfulness is associated with increased empathy, compassion, and connectedness with others and the world. It seems that through mindfulness, we can develop the capacity to be aware, understand and regulate our own internal processes, which in turn can help us better understand, feel and resonate with what others are experiencing and have compassion (Amel et al, 2008; Block-Lerner et al, 2007; Ericson, et al, 2014; Glomb et al, 2011; Tipsord, 2009).
- *Self-regulation / self-control:* Mindfulness is associated with enhanced self-control, i.e. the ability to change our thoughts and feelings, to disrupt undesired behavioral habits (e.g. urges and impulses) and abstain from acting on them, and to persevere in important tasks (Armstrong, 2012; Bowlin & Baer, 2012; Brown & Ryan, 2003; Friese et al, 2012; Holas & Jankowski, 2013, Langer, 1992).
- *More conscious consumption choices:* As mindfulness practice is associated with reduced automaticity, it may help to become less susceptible to unconscious consumption choices and conditioning and manipulations by advertisers; and make reflective rather than automatic choices (Rosenberg, 2004).
- *Care and concern for the environment:* As mindfulness practice is associated with a wider sense of connectedness with nature, it is likely to stimulate interest in protecting and reducing harm to nature (Amel et al, 2008; Jacob et al, 2009). Another reason why mindfulness may indirectly lead to care and concern for the environment is that many studies show that empathy and compassion support a pro-environmental orientation (Ericson et al, 2014).
- *Lower consumption desires and aspirations:* As mindfulness practice is associated with higher awareness of our (real) needs, it may help to notice that our needs are quite limited as Maslow and Max-Neef have demonstrated and in contrast to what marketing and the consumer culture makes us believe. Hence we are likely to have lower consumption desires and aspirations (Ericson, et al, 2014). Also, increased general well-being and better emotional coping may foster a sense of having enough and counter attempts to find fulfillment through consumption (Amel et al, 2009; Brown et al, 2009; Jacob et al, 2009; Rosenberg, 2004).

- *Lower impulsive consumption:* As mindfulness is associated with greater contentment and fulfillment, and self-control, it may allow on one hand reducing urges of consumption stemming from feelings of emptiness and on the other hand reactivity to impulses. It may thus reduce impulsive consumption (Armstrong, 2012; Rosenberg, 2004).
- *Reduced intention behavior gap:* Research shows that mindfulness mediates the intention-behavior gap. The influence of mindfulness on self-control is believed to be the explanation of this relationship. As we have a better ability to control potential thoughts and emotions countering positive intention, we are more likely to act as we intend to (Chatzisarantis & Hagger, 2007).

3 Theoretical lens

In this thesis we are interested in understanding the potential of mindfulness for sustainable consumption. For that it is useful to have a framing of the problem. Here we choose a practice perspective based on social practice theory. After introducing the practice perspective (section 3.1), we explain how consumption is viewed from a practice perspective (section 3.2) and why we choose to adopt this perspective (section 3.3).

3.1 Basics of social practice theory

Social practice theory emerged within the field of sociology as a conceptual movement putting 'social practices' – instead of social structures or individual actors - as the central unit of social inquiry.

3.1.1 Defining practices

The meaning of 'practice' in practice theory is different from some common understandings of the term (Kuijer, 2013). It is for example, common to speak of 'practice' as opposed to 'theory', in which practice refers to bodily actions, while theory merely concerns thinking (Kuijer, 2013). The term 'practice' is also commonly used as a verb (e.g. 'to practice') referring to the repeated performance of something with the objective to get better, for example, practicing ones drawing skills (Kuijer, 2013). In practice theory, however, 'practice' refers to a practice or practices as a noun. More precisely a practice represents a set of interconnected doings and sayings or a cluster of elements, which are linked together and reproduced by individuals through their daily life (Schatzki, 2002; Shove, 2003). Individuals are viewed as 'carriers of practices' and Schatzki (2011:54) comments they are "always carrying out this or that practice" (Schatzki, 2011:54).

Practices can be 'dispersed' or 'integrative'. *Dispersed practices* are single types of action common across many domains of everyday life, such as understanding, sharing, learning, helping, thinking, etc. (Schatzki 1996; Warde, 2005). In other words, they are generic practices that can be found within many other practices. In contrast, *integrative practices* are complex entities joining multiple actions, projects, ends, etc. such as cooking, eating, cycling, driving, cleaning, showering, etc. (Schatzki 1996; Warde, 2005).

3.1.2 The elements of practices

According to Shove (2003), practices encompass three elements: stuff, skills and images or alternatively named materials, competences and meanings (see Figure 1). *Stuff* (materials) refers to the tangible, material elements used in a practice, like objects, equipment, technologies, infrastructures, and the human body itself (Shove, 2003). For example, cooking requires pots, pans, ingredients, physical space, energy, hands, etc. *Skills* (competences) refer to the know-how (of rules, principles, norms, etc.), techniques and procedures needed to carry out a practice (Shove, 2003). For example, cooking requires knowing how to prepare and assemble ingredients, how to recognize if e.g meat is cooked or food is burnt but also knowing that babies require different food than adults, that certain ingredients (e.g. vinegar, chilies, salt) cannot be the main ingredient of a meal, that it is not appropriate to eat only deserts, etc. Finally, *images* (meanings) refer to the social and symbolic significance of practices (Shove, 2003). They are socially shared concepts or ideas associated with the practice that give meaning to it and reasons to engage in it. For example, eating dinner might be associated with a human need, a social and relaxing activity, a time of the day, a gift from the Earth, etc.

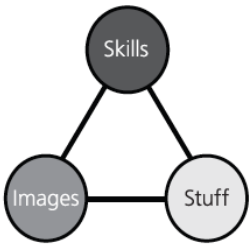


Figure 1: The elements of a social practice. The connections between the elements represent the dynamic linkage and influence that is continually maintained or challenged through performance (adapted from Shove, 2003)

The three elements mutually influence and shape each other and can evolve over time. For example, the availability of freezers (stuff) influenced the know-how of storing food (skill). Hence, practices can be seen as a constellation of elements that are dynamically linked together in and through performance (Shove et al, 2012). As such practices are emergent phenomenons (Shove et al, 2012; Warde, 2005).

3.1.3 The dual nature of practices

The three elements' model above shows that practices can be defined as co-ordinated entities. However, practices exist at the same as performances (Schatzki, 2002; Shove et al, 2007; Spurling et al, 2013; Ropke, 2009). Indeed, to be recognized as an entity and to exist, they need to be performed by people. Therefore, practices have a dual nature (Schatzki, 2002; Shove et al, 2007; Spurling et al, 2013; Ropke, 2009).

Kuijer (2013) sees the 'practice-as-entity' as a guiding structure for the practice-as-performance and the 'practice-as-performance' as a manifestation of the practice-as-entity and the only observable part of a practice. The 'practice-as-entity' and the 'practice-as-performance' relate recursively. The entity forms the performance but as it is dependent on repeated performances to remain alive, it also arises from them (Kuijer, 2013; Shove et al, 2012).

According to Kuijer (2013), each performance may integrate different sets of elements from all the elements forming together the practice-as-entity. As such, the entity holds many variations in performances. For example, heating up in a microwave a pre-made dish and preparing a dish from scratch are different manifestations of the practice of cooking. To better illustrate the dual nature of practices, Kuijer (2013) adjusts Shove's Stuff-Image-Skill model by zooming in and illustrating the three elements, as groupings of smaller elements, and the links, as a multitude of links. The practice-as-entity contains all elements and links that occur in the variety of performances it organizes (see Figure 2)

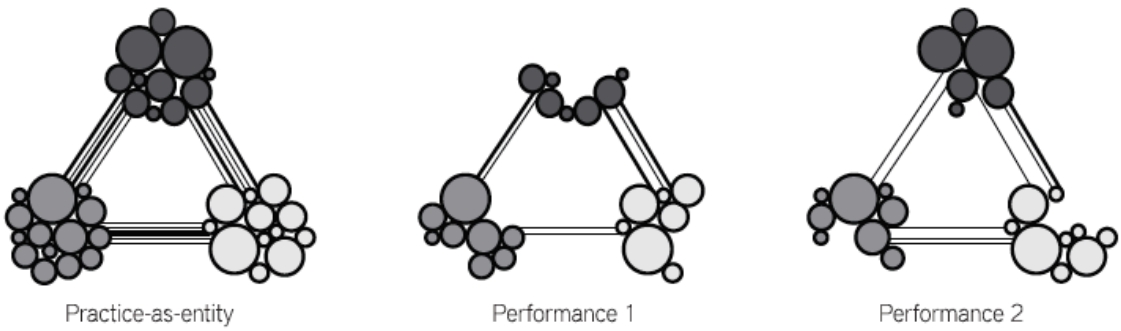


Figure 2:The practice-as-entity contains all elements and links that occur in the variety of performances it organizes (note: it is usually more than two performances that make up an entity) (Kuijer, 2013:53)

Kuijer (2013) also notes that all elements and links in the entity may not be of equal importance. For instance, elements or links that occur in many or all performances may be stronger or more essential (as depicted in Figure 3). For example, the link between cooking and nourishing oneself is commonly made, while the link between cooking and relaxing may be less often made.

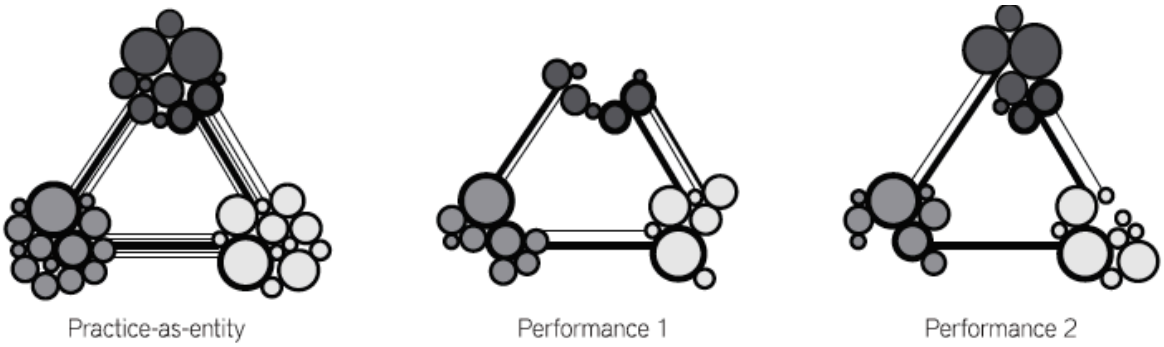


Figure 3: Elements and links between them can be more or less essential/strong (Kuijer, 2013:53)

3.1.4 The field of practices

Schatzki (1996) calls the total of human practices, the 'field of practices'. In this field, practices do not exist in isolation from each other on the contrary, they are interrelated (Schatzki, 1996, Shove et al, 2012). Practices, for example, overlap by taking place in the same location or time slot, or in a sequence to each other. For example, the practices of working and the practice of socializing interact in an office. Practices may also connect by sharing elements of practices. For example, the same bicycle can be an element in the practice of commuting and in the practice of sporting. Practices can also be co-dependent such as cooking and eating or shopping and storing food. On the opposite, practices may also compete with each other for time, space, resources and performers (Shove et al, 2012). For example, one cannot watch television and work in the garden at the same time.

More than just interacting, practices influence each other. Lessons learned, innovations and procedures in one practice may transfer, spill-over or transform in other ways other practices. As such changes in one practice can lead to changes in other practices with which it co-exists. For example, the introduction of the freezer has not only changed practices of storing food, but also of cooking, eating and shopping, and in a broader sense, "the scheduling and co-ordination of domestic life" (Shove & Southerton, 2000:301). Some practices may also evolve at the expense of competing practices. For example, the rise in music downloading and on-line videos has resulted in reduced purchasing of cds. In short, practices are dynamically interconnected and can be viewed as embedded in more or less strong bundles of practices. These bundles are like "webs of co-dependence that are (…) continually rewoven as practices are reproduced' (Shove et al. 2012:94).

3.1.5 Dynamics of practices

Practices are often self-perpetuating due to processes like habituation, routine, tacit knowledge, tradition, embodied know-how and costs, existing infrastructure, etc. (Randles & Warde, 2006; Shove et al, 2012; Warde, 2005). However, despite their considerable inertia, practices are also inherently dynamic (Randles & Warde, 2006; Shove et al, 2012; Warde, 2005). Over time, practices emerge, reproduce and decay; they are destabilized and restabilized. We only need to look across the past few decades to note the extent to which the practices for instance of, working, travelling and communicating have intentionally and unintentionally changed in a relatively short amount of time.

Though there is a range of different pathways through which practices change, we will look here at three key ones. First, the introduction of new elements or links can change practices (Shove et al, 2012). 'New' here refers to new to the particular practice (and not necessarily not new to the world).

For example, Shove and Pantzar (2005) show that the practice of Nordic walking emerged from bringing together the familiar components of walking, sticks, play and health. In addition to breaking and shifting structures, the process of integrating new elements or links may involve rejecting existing one. For example, in the practice of staying warm at home, some stuff (e.g. coal scuttles, dust, and sheds) and skill elements (e.g. preventing fires and making and maintaining a coal fire) became obsolete with the introduction of liquid fuel (Kuijer, 2013).

The second key mechanism by which practices can change results from the process of recruitment of practitioners or in other words, a change in the population of 'carriers' of the practice (Shove et al, 2012). Given that practices endure through their performance, the evolution of a practice depends upon its success in recruiting and retaining carriers of the practice (Shove and Pantzar, 2005). This brings the question how do practice recruit and retain practitioners? According to Shove et al (2012:65), "the chances of becoming the carrier of any one practice are closely related to the social and symbolic significance of participation and to highly structured and vastly different opportunities to accumulate and amass the different types of capital required for, and typically generated by participation".

Finally, practices can also change as their organization (i.e. how they interlock) changes (Shove et al, 2012). When and where practices take place plays a determining role for the synchronization of practices. In other words, bundles of practices are held in place by spatial arrangement (e.g. sites of practice) and by the temporal rhythms and routines of institutions (e.g. opening hours of shop, working hours, etc) (Shove et al, 2012; Spurling et al, 2013). The way in which one practice bundles together with others is significant for changes to both the process of practitioner recruitment and the elements of practices (Shove et al, 2012; Spurling et al, 2013).

3.1.6 Shifting to sustainable practices

Based on the mechanisms explained above, Spurling et al (2013) identified three ways to shift to more sustainable practices: 1) re-crafting practices, 2) substituting practices, and 3) restructuring practices (see Figure 4).

Re-crafting practices refers to reducing the resource intensity of existing practice through intervening in the elements of practices and their interplay (Spurling et al, 2013). This could be for example, re-crafting the practice of eating, from a meat-based diet to a more vegetarian diet. This would involve changing the material aspect of the practice (e.g. from meat to more vegetables) as well as skills and procedures (e.g. vegetarian recipes and cooking style) and the meanings (e.g. meat is not needed to live healthily) associated with the practice.

Substituting practices refers to replacing unsustainable practices with more sustainable alternatives by harnessing the competition for time, space and resources between practices (Spurling et al, 2013). In other terms, the idea is to influence the recruitment and reproduction process of several practices by intervening at the level of access, participation, experience and commitment to these practices (Spurling et al, 2013). For example, substituting the practice of driving by the practice of cycling would involve discouraging, driving and/or encouraging cycling by creating more cycling lanes, by increasing fuel taxes, etc.

Finally, *restructuring practices* refers to changing how practices interlock by rearranging the sequences and synchronization of practices (Spurling et al, 2013). For example, private mobility practices generally emerge from the overall coordination of daily life. Concepts like working hubs, home offices, tele-conferences, flexible hours, online shopping, mixed-urban zoning, have the potential to reconfigure how mobility practices interlock with working, grocery shopping, caring for kids, transport and urban planning, etc.

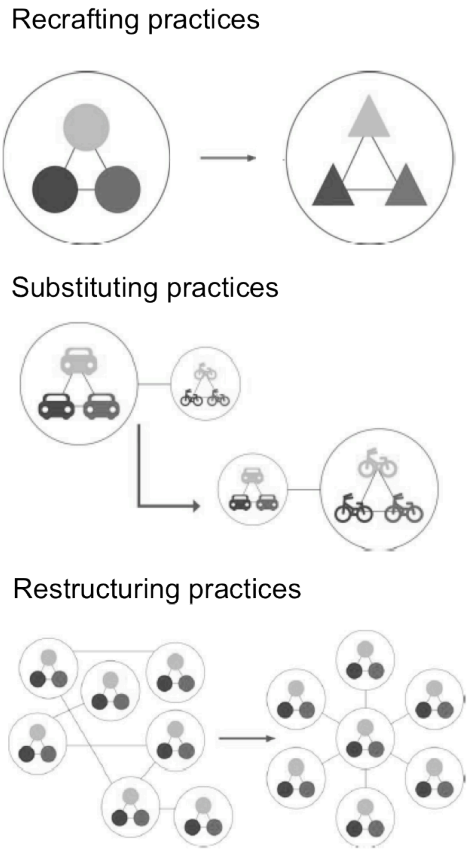


Figure 4: Shifting to sustainable practices (adapted from Spurling et al, 2013:22)

3.2 Consumption from a social practice theory perspective

From a social practice theory perspective, consumption does not occur for its own sake; it occurs within and for the sake of practices (Randles & Warde, 2006; Ropke, 2009; Shove, 2003; Warde, 2005). For example, cars are worn out and petrol is burned in the process of motoring. Consumption is not itself a practice but, rather, a moment in practices like eating, traveling, showering, etc. (Randles & Warde, 2006; Ropke, 2009; Shove, 2003; Warde, 2005). In other words, the act of 'using up' either material artifacts, infrastructure, equipment and tools is an outcome from executing practices (Ropke, 2009). Individuals do not use water, energy, and other resources - they use the services these resources make possible and are often not aware of the resources they draw upon for the performance of their practices (Ropke, 2009).

Kuijer (2013) proposes that we can picture an average resource consumption emerging from practices (see Figure 5). Since a high variety in performances exists within each practice, each practice includes in fact variety in levels of resource consumption (see Figure 6) (Kuijer, 2013). For example, showering for 5 minutes entails less resource consumption than showering for 20 minutes. The average consumption of a practice might also evolve over time, over the 'career' of the practice (see Figure 7) (Kuijer, 2013). For example, the practice of bathing became much more resources intensive as the technology of showers with running water emerged and the frequency of showers increased. Finally, *similar* practices, e.g. bathing and showering, might also have a more or less high level of resource consumption (see Figure 8) (Kuijer, 2013).

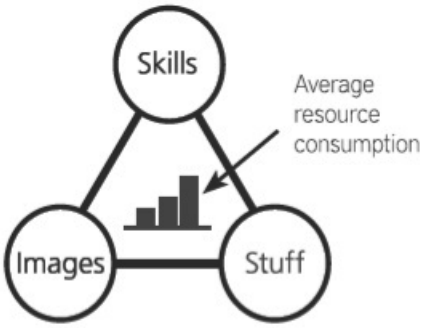


Figure 5: The practice as a constellation of images, skills and stuff and a certain average level of resource consumption per performance (Kuijer, 2013:56)

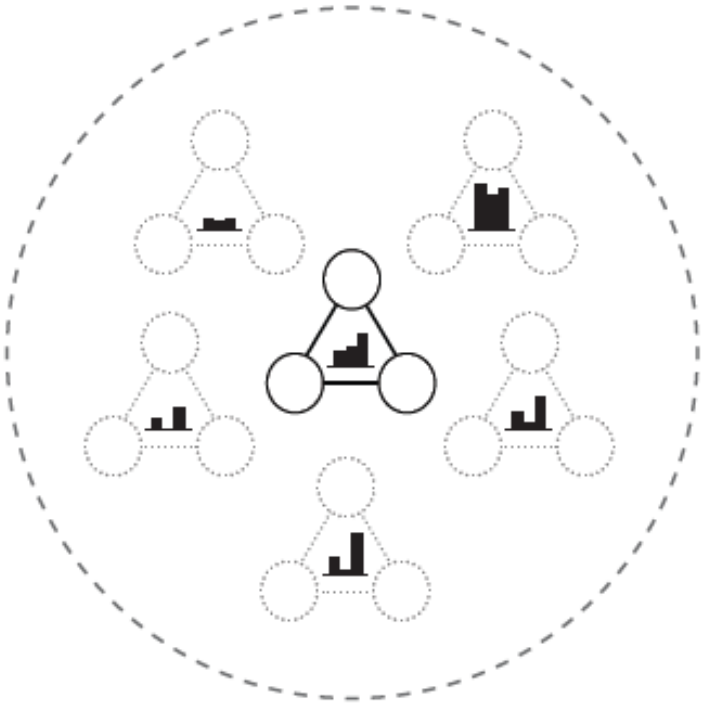


Figure 6: Varieties in levels of resource consumption for a practice (Kuijer, 2013:56)

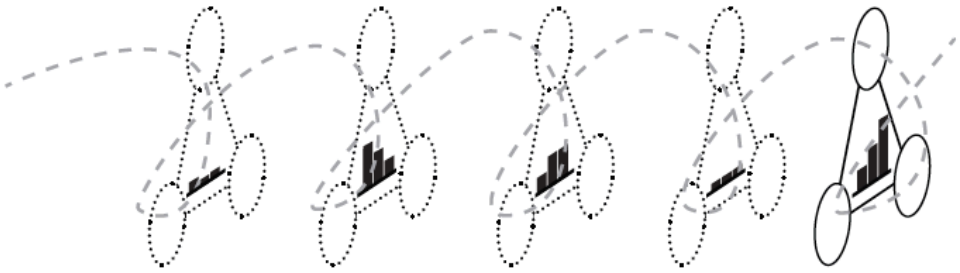


Figure 7: Potential trajectory of varying levels of resource consumption of a practice over time (Kuijer, 2013:57)

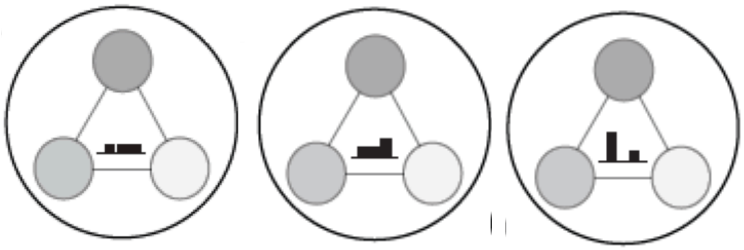


Figure 8: Similar practices may have be less resources intensive (adapted from Kuijer, 2013:62)

3.3 On choosing a social practice theory perspective

While consumption studies often draw on either socio-psychological or economical theories, in this research we choose to use a social practice theory perspective, i.e. a sociological approach to consumption. We choose this approach because it has been recognized as a particularly useful framework for analyzing consumption and designing policy interventions (Warde, 2005). Moreover, it fits well with the Industrial Ecology perspective as it acknowledges the ordinary and conventional nature of much consumption and the socio-technical dynamics behind consumption (Ropke, 2009; Scott, 2008; Shove, 2003; Randles & Warde, 2006; Warde, 2005). In contrast, socio-psychological and economical approaches to sustainable consumption tend to focus on conspicuous consumption and changing consumer behavior (Scott, 2008; Shove, 2003).

A social practice theory perspective views individuals as 'practitioners' or 'carriers of practices' or agents contributing to the perpetuation or changing of consumption patterns, rather than 'consumers' (Kuijer, 2013; Randles & Warde, 2006; Ropke, 2009; Shove, 2003; Spurling et al, 2013; Warde, 2005). Thus, it allows to understand sustainable consumption as a problem of organization and development of practices rather than a problem of individual consumer behavior. In other words, it allows to shift from a focus on "How do we change individuals' behaviors to be more sustainable?" to "How do we shift everyday practices to be more sustainable?" (Spurling et al, 2013; Warde, 2005) It diverts from 'intervening' in choices and lead towards concentrating upon why and how certain practices are produced and re-produced, why and how others are prevented, how practices stabilize, transform, decay, etc. This allows to prevent the shortcoming of individualist approaches to behavior change, which have often not been as effective at creating change as hoped or expected or and are confronted to the ethical issue of intervening in an individual's private space (Kuijer, 2013; Ropke, 2009; Spurling et al, 2013; Warde, 2005).

In short, social practice theory helps to understand the complexity of changing consumption patterns and to adopt a holistic and systemic view on consumption. It allows seeing consumption as a consequence of practices, to acknowledge the routine character of most consumption, to recognize the influence of socio-technical dynamics and to focus on changing practice rather than individual behavior.

Choosing a social practice theory perspective also implies framing mindfulness as a social practice. To our knowledge, so far mindfulness has never been studied with a practice perspective. However, we believe that this can be valuable for explaining the potential of mindfulness for sustainable consumption patterns. We suggest that mindfulness can be viewed as a *dispersed* practice, which may influence the reproduction of many *integrative* practices, including relevant ones in terms of sustainable consumption, e.g. eating, mobility and living practices. Given that documented effects of mindfulness (e.g. broader awareness and consciousness, connectedness with nature, compassion, contentment and reduced automaticity) seem relevant for the transition towards more sustainable practices, we further suggest that the integrative practices would change towards more sustainable ones, e.g. practices with a lower environmental consumption impact.

Getting recruited into mindfulness practice (and thereof developing increased awareness, etc.) may create "crises in routines" in some consumption relevant practices as the practitioner may get new understandings of practices. Depending on the "strength" of the crisis, and on the "strength" of the links and elements in a given practice (i.e. the inertia in the practice), this may lead to a reconfiguration of the given practice. Since mindfulness is often seen as a way of life, we can suppose that it goes together with a certain bundle of practices or a specific way of performing certain practices. This further supports our propositions. Also, since mindfulness is typically associated with pervasive changes and has even proven to change the structure of our brain and our genes (Davidson et al, 2003; Kaliman et al, 2014), it is likely that carriers of the practice will experience changes in their everyday life practices.

Adopting a SPT perspective is also useful to gain insights in the dynamics of mindfulness practice and for instance the 'career' of the practice and the 'career' of the practitioners. Understanding these dynamics allows to better estimate the potential of mindfulness for sustainable consumption. Indeed mindfulness can only be meaningful for sustainable consumption at the conditions that: 1) it has an impact on consumption patterns, and 2) it becomes (or has the potential to become) a mainstream or "normal" everyday practice.

Regarding the career of the practice, as explained earlier, mindfulness has been growing in popularity in the last decades. However it is neither an innovation nor a new practice. In fact the essence of the practice probably exists since as long as human beings exist, though its name only exists since Buddhism. So mindfulness is a very ancient practice and people might be naturally practicing mindfulness without necessarily knowing the name for it. Until recently, mindfulness was associated with spirituality due to its original Buddhist roots. But as mindfulness has travelled across time and space (for instance from the East to the West), it has transformed.

The current hype around mindfulness could be associated to the transformation the practice is undergoing due to a changing social context as well innovation within the practice. Part of the changing social context is perhaps globalization, higher level of and busier and faster pace of life. Regarding innovation within the practice, mindfulness is for instance applied in new cultures (e.g. in Western and more secular cultures) and new contexts (for example in clinics, in schools and in businesses, i.e. outside monasteries). These innovations go hand in hand with a transformation of the elements of the practice (e.g. the procedures, meanings, etc.). Now for example, mindfulness apps exists which years before would have been impossible. Also the perception of and associations with mindfulness seems to be changing. For instance, more and more individuals and institutions see mindfulness as a form of mind training just as important as physical exercise. Growing scientific evidences of the benefits of mindfulness has also certainly contributed to the popularity of mindfulness and changed the face of mindfulness as it demystifies the practice.

Regarding the carrier of practitioners, we observed that social networks (e.g. being recommended by someone), awareness (e.g. reading a book or article about it), "crisis situation" (e.g. stress, depression, illness, etc.) and opportunities to participate in the practice (e.g. availability of and access to courses) play a particularly important role for the recruitment of practitioners. A positive feedback mechanism also probably exists as the more mindfulness practitioners exist, the more the practice becomes "normal" and the more it will recruit other practitioners.

Regarding the factors influencing the retention of practitioners, it seems like the most important ones are the rewards of the practice (i.e. the benefits in terms of well-being, relationship, etc.), habit formation (e.g. making mindfulness part of everyday life), social networks (e.g. having a circle of friends practicing mindfulness) and supporting environments (e.g. environments that don not overstimulate the mind). We can also note that whilst continued participation and defection are almost always in tension, practitioners may experience moments of irreversibility as their

practitioner-identity evolves (e.g. as mindfulness becomes as central characteristics of someone's identity).

Finally, the defection of practitioners seems mostly related to failure of the factors influencing retention (e.g. rewards of the practice, habit formation, social network and supporting environment) as well as competition for attention from other practices (e.g. mind distracting practices).

4 Methodology

This chapter presents the methodology used in this research. It is divided in three sections; the first introduces how the literature was reviewed (section 4.1); the second explains how the conceptual model was developed (section 4.2) and finally the last section concerns how the empirical research was carried out (section 4.3).

4.1 Literature review

To define the core concepts of this research as well as to choose a theoretical perspective, we conducted a literature review. This review was based on peer-reviewed journal articles, books from academic or scientific publishers and reports from acknowledged sources (e.g. UNEP, European commission). Literature was collected through different strategies namely: recommendations from supervisors; key word search in scientific database (namely Scopus and Web of Knowledge) as well as specifically in the *Journal of Industrial Ecology,* the *Journal of Cleaner Production* and the *Journal of Ecological Economics;* 'forward' and 'backward' searches (i.e. respectively looking up references cited by a relevant publication and looking up references citing a relevant publication); and author search (i.e. looking up other publications from key authors). In the literature search and selection, publication date and credibility of sources were kept in mind. Except in the case of ground references on a certain topic, only publications from the twenty last years were considered. The literature search and selection was done in several rounds in an organic rather than systematic way. The literature review stopped when we considered having a sufficient background understanding for carrying out our empirical research.

4.2 Conceptual model development and validation

The first aim of this research was to conceptualize the link between mindfulness and sustainable household consumption. To achieve this objective, we first developed a preliminary conceptual model by connecting and interpreting pieces of literature. Since we made assumptions and partly relied on intuitive reflection, we interviewed experts and practitioners to validate our preliminary model. This resulted in an improved conceptual model.

To develop the preliminary conceptual model, we used an iterative design process (see section 5.1 for a description of the whole design process). Once the preliminary conceptual model built, we used 'member validation' to validate and refine it. For that, we interviewed scientific experts and practitioners. We estimated that this mix of interviewees would allow to have a more integral view on the model and reduce the gap between theory and practice. We also estimated that due to time constraints, two-three interviewees from each set of members would be sufficient. The characteristics of the interviewees is described in section 5.2.

The scientific experts were identified through literature. All scientists who have done work related to mindfulness and sustainability were listed (see Appendix B for the list of potential expert interviewees). The ones whose work is most closely related to this thesis were prioritized. The selected experts were contacted via email (see Appendix B for the template email) and were interviewed via Skype due to the distant location of the interviewees. Regarding the practitioners, they were identified through my own network and selected based on their geographical proximity to myself. They were contacted more informally than the scientific experts since a connection between them and myself already existed. The practitioners were interviewed face-to-face.

The member validation included two scientific experts (e.g. Torgeir Ericson and Christine Polzin) and three practitioners (e.g. Alexander Ettema, Jurrian Arnold, Sebastian Elshout). In a later stage, we also discussed with a third scientific expert (e.g. Alison Armstrong). Though we did not interview her on the preliminary conceptual model as we had already revised it, we do include this discussion as Armstrong had valuable additions.

The member validation was done under the form of semi-structured interviews. Due to the inherent differences between scientific experts and practitioners, a slightly different approach was used for each set of members. With scientific experts, we provided the preliminary conceptual model before the interview and during the interview we focused the discussion mainly on the model. We assumed they are used to think critically about mindfulness and consumption and therefore could be directly asked to review and provide feedback on scientific material.

In contrast, we assumed that practitioners are not necessarily used to thinking scientifically about mindfulness, and therefore it is most interesting to focus on their empiric knowledge built from experience. Moreover it is important to trigger them to think critically and to use a language that is free of scientific jargon. Hence with practitioners, we focused more on their personal experience, observations and reflections about how mindfulness might relate to consumption and only towards the end of the interview, we showed them the model, and asked whether they could relate to it.

An interview protocol was used to give a rough structure to the interviews and ensure we would get the feedback and insights needed (see Appendix B for the interview protocol). However since the main aim of the interviews was to challenge the preliminary conceptual model, the interviews were approached more as a dialogue and space to think along, trigger reflections and challenge ideas. Hence we consciously followed up particular comments or ideas to a deeper level, asked for clarification and/or concrete examples and encouraged sharing of suggestions, personal ideas and observation. That noted, the interview protocol was designed around five phases, namely:

1. Interview introduction: This phase was meant to 'prepare' interviewees and build rapport. I introduced myself and my research, the purpose, duration and content of the interview and how the answers would be used. This phase was also used to ask for permission to record and quote the interviewee; and to clarify any matter before the start of the interview.
2. Background and personal experience: This phase was meant to get to know interviewees' background in terms of interest and work (especially for the scientific experts), and personal experience with mindfulness and possible changes in consumption patterns.
3. Observations and reflections on the relationship between mindfulness & consumption: This phase was meant to uncover possible gaps in literature or gaps between theory and practice.
4. Validity of the preliminary model: This phase was used to ask for critical appraisal on the preliminary model, for instance on what the interviewees recognize, what is missing, what other changes is needed. In this phase, we also asked specific questions on the parts of the model that relied on intuition and assumptions (see section 5.1).
5. Interview closing: This phase was used to openly ask for any other recommendations, suggestions, or comments; to discuss the follow up of the interview; and give the opportunity to interviewees to make any additions they wanted to.

Figure 9 schematizes the interview flow of the member validation.

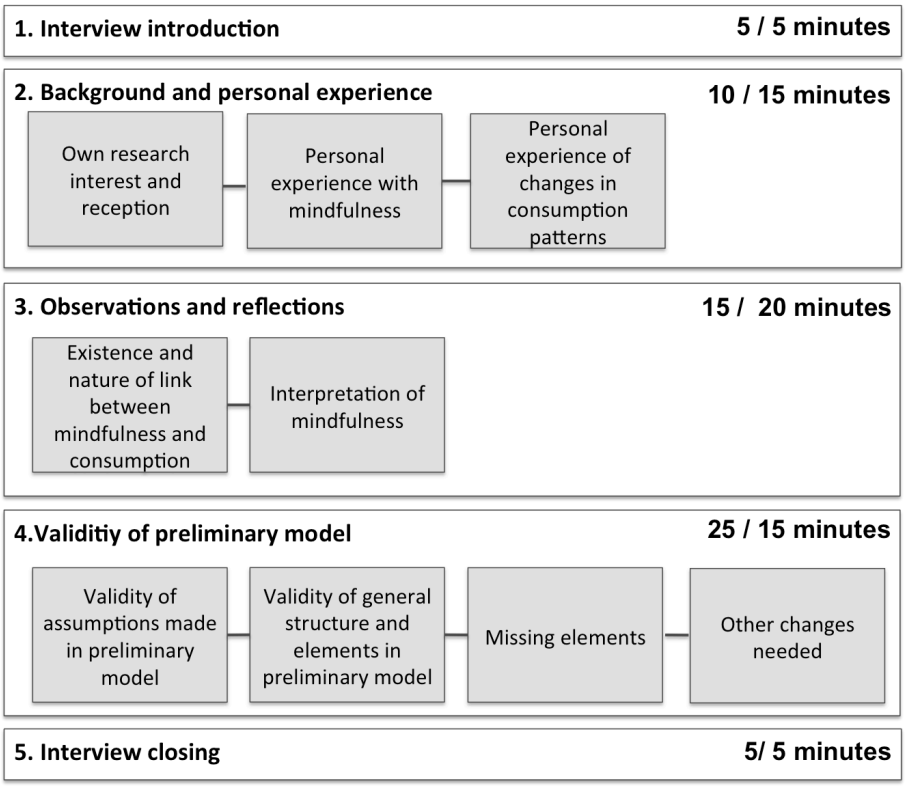


Figure 9: interview flow chart of the member validation (time indication on the left is for scientific experts and on the right for practitioners)

Each interview lasted about 60 minutes and was audio-recorded. All interviews were then fully transcribed. Emerging themes were then listed and connected to the preliminary model. Based on the member validation, we improved conceptual model (see section 5.3 for a description of the whole the process of improving the conceptual model).

4.3 Empirical research

The second objective of this research was to empirically explore the effect of mindfulness on practitioners' consumption patterns. In order to achieve this objective, we used in-depth semi-structured interviews of mindfulness practitioners and self-report of changes in consumption patterns. This research method was chosen following an evaluation of different methods against feasibility and efficiency (see Appendix A). The main advantage of semi-structured interviews is that they allow flexibility in procedure, comparison of results and they fit the explorative and qualitative nature of this research. Regarding the measurement method, we estimated that self-report was the most feasible method to explore changes in consumption patterns with semi-structured interviews. Considering time constraints and feasibility, we also estimated that 10 interviews should be sufficient to collect meaningful empirical data.

To find a relevant, feasible and coherent research sample, the following basic criteria were used: the interviewees have to speak good English, live in a Western country, practice or attempt to practice mindfulness in their everyday life and in a similar way and be of diverse mindfulness experience levels. Based on these criteria, we considered popular ways through which people learn mindfulness. We considered for instance: 1) Mindfulness Based Stress Reduction (MBSR) courses which are eight-week courses designed by Jon Kabat-Zinn who is considered to be the founder of "modern" mindfulness; 2) the Get some headspace smartphone app which has had over a million downloads since its creation in 2010; 3) Vipassana meditation courses which are taught all over the world in 10 day residential silent retreats and are considered to be one of the oldest mindfulness

tradition; 4) Retreats by Thich Nhat Hanh who is a Vietnamese Buddhist monk established in France and who has written over 20 books popularizing mindfulness in the West.

The first and second potential research samples were dismissed as options for practical reasons. In the case of MBSR courses, it was felt important to personally know/have some experience with the approach. However following a MBSR course was financially infeasible within this research. In the case of Get some Headspace, it would have been difficult to find users. The third potential research sample was abandoned as we contacted two centers namely the European Vipassana meditation center and the Swiss Vipassana center and received a negative response to our request for collaboration from the former and no response despite follow up email and phone calls from the later. The research sample interviewed therefore consisted of practitioners who follow Thich Nhat Hanh's mindfulness tradition. We can note that although Thich Nhat Hanh is a Buddhist monk, our impression is that the common denominator amongst followers of Thich Nhat Hanh is mindfulness more than Buddhism. Indeed, followers include individuals from different religions as well as agnostics and atheists.

Interviewees were recruited through a mindfulness retreat by Thich Nhat Hanh, which took place in August 2014 in Germany and in which I participated. The retreat was in English language with Dutch translation. It counted 700 people from all over the world but especially from the Netherlands (given the Dutch translation provided). These 700 people were divided into smaller groups of 10-20 persons. There were groups of young adults (18-35 years old) and groups of older adults (≤35 years old). Most of these groups were Dutch speaking. An English-speaking group of young adults (n=11) and one of older adults (n=16) were contacted by email. The potential interviewees were emailed a broad outline of the research and the involvement sought (see Appendix A.C for the template email). From the 27 persons emailed, 7 replied and were interviewed. One interview had to be dismissed due to recording failure. To find other potential interviewees and since the research sample was lacking longer-term practitioners, we contacted people hosting mindfulness practice gatherings in Thich Nhat Hanh's tradition and in geographic proximity to myself (e.g. Delft). All three persons emailed accepted to be interviewed.

The research sample encompassed mindfulness practitioners (n=10) with 2 to 34 years of experience and with a distribution slightly skewed towards the left. The interviewees were between 22 and 66 year old with a quite even distribution. There were 6 females and 4 males. Six of them live in the Netherlands, the rest lives in other Western countries (namely Germany, Ireland and the US). Half of them are married or living with partners, one is divorced and the other 4 are single. Most of them (8) live in an urban areas. The interviewees lived in different types of household structure for instance, alone (4), with their partners (3), partners and kid (2), parents (1), and housemates (1). The interviewees had different education levels e.g. mandatory school (1), Highschool (1), Bachelor (3), Master (4) and Doctorate (1). The interviewees also had different working status e.g. employed full-time (3), employed part-time (1), self-employed (2), student (2) and retired (2). The occupation of the interviewees included reiki student, art dealer, law student, retired neuroscientist, cardiologist, therapist, retired social worker, yoga teacher and criminal lawyer. Finally, three of the interviewees considered themselves Buddhist, 4 qualified themselves, as "partly-Buddhist", "half-Buddhist", or "atheist-Buddhist" and 3 did not have any specific inclination.

Although no studies exist on the profile of mindfulness practitioners, from our observation the sample seems rather representative of the larger population of mindfulness practionners in Thich Nhat Hanh's tradition in Western countries. The sample encompasses in general great socio-demographic variety, though all the interviewees are working in rather socially involved domains and are rather highly educated and spiritual. We believe however that this is a general characteristic of people practicing mindfulness in Thich Nhat Hanh's tradition and it is probably not a pure coincidence of the sample.

Figure 10 gives a visual overview of the socio-demographic characteristics of the sample. Appendix D gives the full details of the socio-demographic characteristics of the research sample.

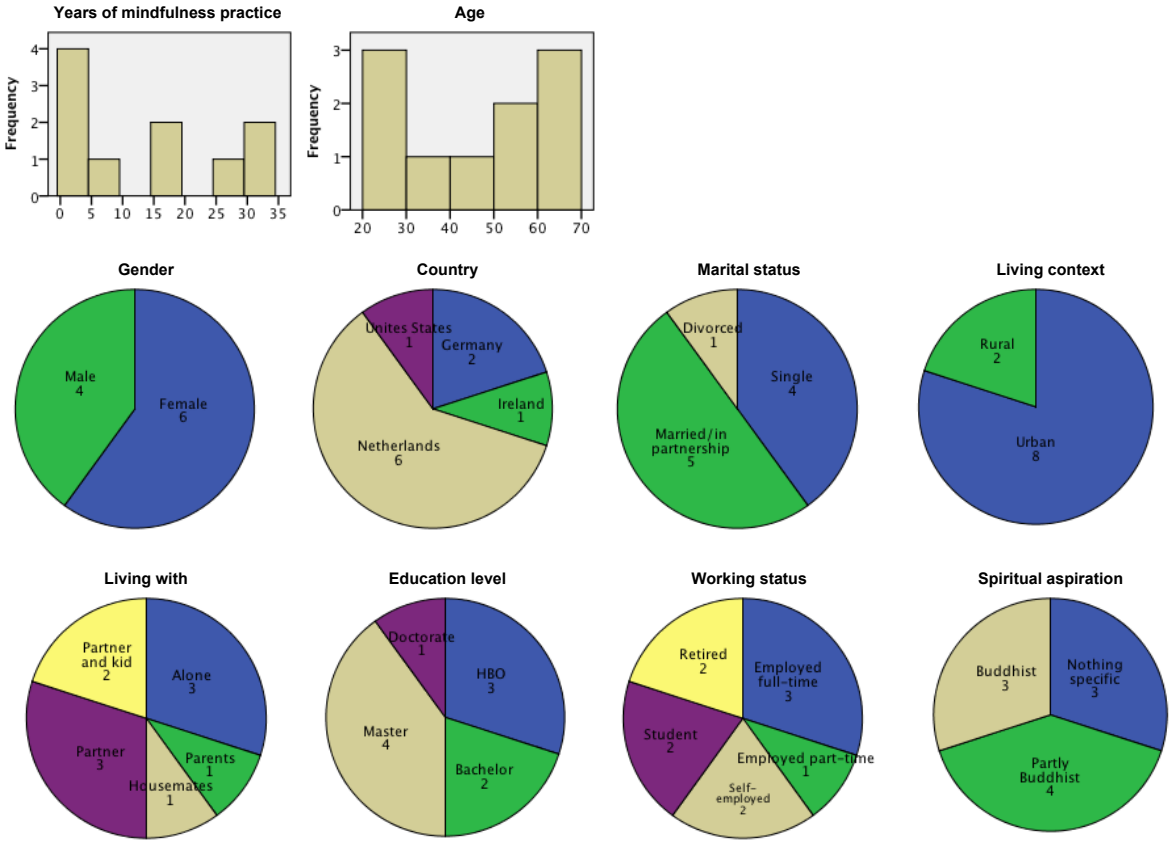


Figure 10: Overview of socio-demographic characteristics

The interviews were held through Skype, phone and face-to-face meetings depending on the location of the interviewee. The interviews lasted approximately 60 minutes and were audio-recorded. To allow comparison between interviews and to maximize their quality, the interviews were conducted following a protocol. The protocol was designed considering best practices in interviewing and the risk of 'social desirability' in response according to Bryman (2012) and Vershuren & Doorewaard (2010). As such, the interview protocol contains non-leading and mainly open question and jargon-free language. To reduce the risk of social desirability in response, it emphasized the need for 'honest answers', good or bad, and the confidential and anonymous treatment of answers. Authentic narratives were also encouraged by adopting a non-judgmental and open attitude. Further, since sustainability and environmental impact are topics especially prone to socially desirable bias given their moral dimension, 'sustainability' was only briefly mentioned in the interview introduction and a question about environmental consciousness was only asked at the very end (vs. at the beginning or middle) of the interview.

The protocol was formulated into six phases, namely (see Appendix D for the full protocol):

1. Introduction: This phase was meant to 'prepare' interviewees and build rapport. I introduced myself and my research, the purpose, duration and content of the interview and how the answers would be used. This phase was also used to ensure confidentiality to participants, explain their right to not answer or withdraw at any time, and ask for permission to record and clarify any questions interviewees may have had before hand.
2. Interpretation and practice of mindfulness: This phase was meant to allow interviewees to relax by asking 'easy' background questions about their personal interpretation and practice of mindfulness, as well as their intention behind their practice.

3. General influence of mindfulness on daily life: This phase was meant to collect data on time use, which broadly influences household consumption patterns. It also included a chance for interviewees to express themselves on other general daily life dimensions.
4. Influence of mindfulness on food, mobility and living habits: This phase was primarily meant to collect more specific data on the three domains of consumption that are most relevant in terms of sustainability impact e.g. food, mobility and living.
5. Influence of mindfulness on environmental consciousness and source of happiness: This phase was meant to uncover whether mindfulness had an influence on how conscious or concerned interviewees are about the environmental impact of their lifestyle and what makes them happy.
6. Closing & socio-demographic form: This phase was used to collect basic socio-demographic data, to discuss the follow up of the interview, and give the opportunity to interviewees to make any additions they wanted to.

Figure 11 schematizes the interview flow.

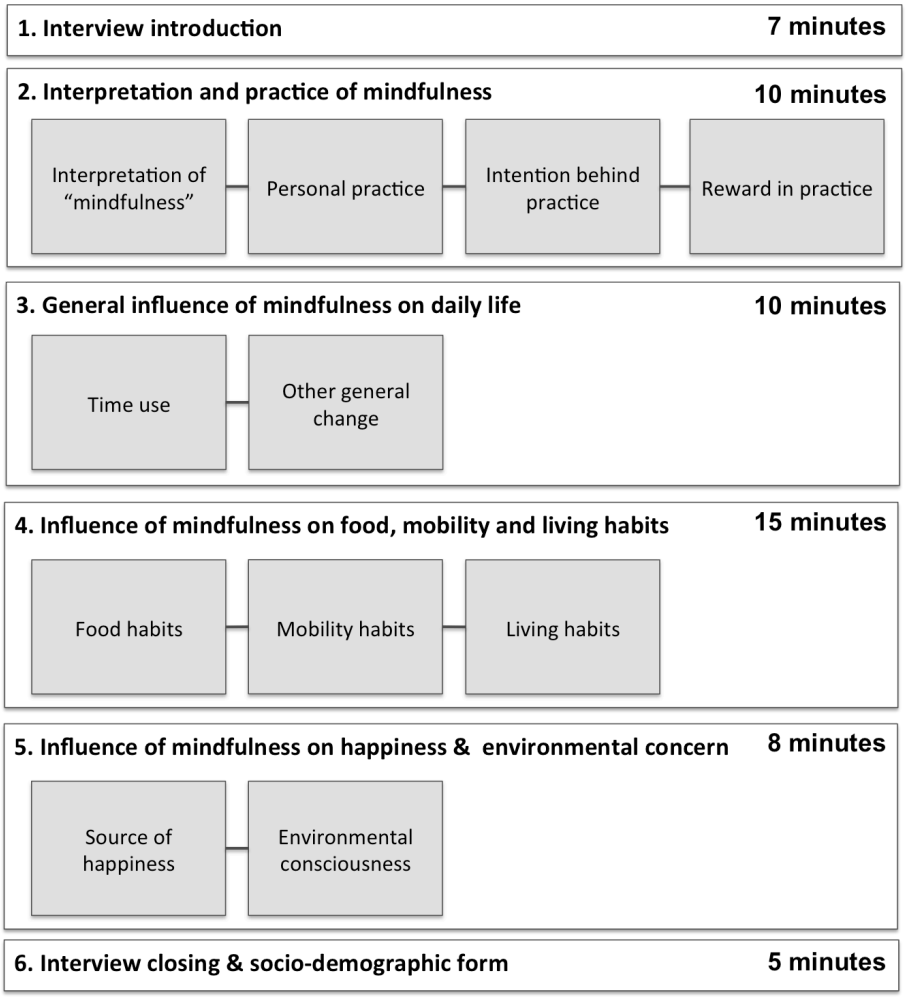


Figure 11: Interview flow chart

Interviews were recorded and fully transcribed. Interviewees were made anonymous by replacing their name by numbers in the transcripts. Since this data served two purposes, namely 1) to explore interviewees' interpretation of mindfulness and changes in consumptions patterns and 2) to test the conceptual model, the data analysis was done with two different approaches. Both data analysis phases involved thematic analysis and manual coding (se Appendix D), but in the first phase themes

were data-driven (i.e. identified in a inductive or bottom-up approach), whereas in the second they were theory-driven (i.e. identified in a deductive or top-down approach). For clarity purpose, we describe below the data analysis process more precisely in a step-by-step approach. However we can note that in reality the process was more recursive, with movement back and forth between different phases, and iterations.

The first phase of data analysis (for characterizing interviewees' interpretation of mindfulness and changes in consumptions patterns) involved the following steps: First, we read through all the transcripts (i.e. "the data corpus") to become immersed and familiar with the data; we also wrote down first ideas in the margin of transcripts. Second, we coded manually all transcripts by systematically highlighting and reporting in the margin of transcripts, data segments that are relevant for characterizing interviewees' interpretation of mindfulness and changes in consumptions patterns. Third, we collated all the codes and relevant data segments in one document. Fourth, we searched for potential themes (i.e. patterns of meaning) by clustering the codes around similar meanings. Redundant codes were also merged here. Fifth, we named the clusters or themes. Sixth, we created a summary table with the themes and related codes in the first column (one cell per theme) and the interviewees on the top row (one cell per interviewee) to get an overview of the prevalence of themes and to facilitate the writing up of results. Finally, we wrote up the data analysis based on the summary tables.

In the second phase of data analysis, we wanted to test the variables in the conceptual model. Thus, we had a priori concepts we wanted to use as themes. So we first read through the interview transcripts and highlighted any material that resonates with (e.g. supports, contradicts or is related in any other way) our a-priori themes. We wrote in the margin of transcripts the corresponding theme to the highlighted data segments. In order to not miss out on possible themes grounded in the data, while reading through the interview transcripts, we also looked out for other themes than those deduced from the conceptual model. Second, we created a document with our themes in headings and collated all the relevant data extracts under these headings. Third, we searched for potential sub-themes by clustering the extracted data around similar meanings. Fourth, we prepared a summary table with the themes and related codes in the first column (one cell per theme) and the interviewees on the top row (one cell per interviewee) to get an overview of the prevalence of themes and to facilitate the writing up of results. Fifth, we filled the summary table by going back to the coded individual transcripts. Sixth, we wrote up the data analysis based on the summary tables and used quotes to illustrate our interpretation.

5 Conceptual model development and validation

This chapter aims to present the development and validation of this research's conceptual model on sustainable consumption and mindfulness practice. First, we describe how we developed a preliminary conceptual model by connecting and interpreting pieces of literature (section 5.1). We then present the results of the member validation of the preliminary conceptual model (section 5.2). Finally, we describe the process to reach an improved conceptual model (section 5.3).

5.1 Development of preliminary conceptual model

In this section, we explain and illustrate the steps and assumptions we made to develop the preliminary conceptual model. For clarity purpose, we present the preliminary conceptual model with a step-by-step approach. However in practice, the design process resembled far more an iterative process than a linear one.

Based on our interpretation of literature and intuition, we drew the backbone of the model (see Figure 12).

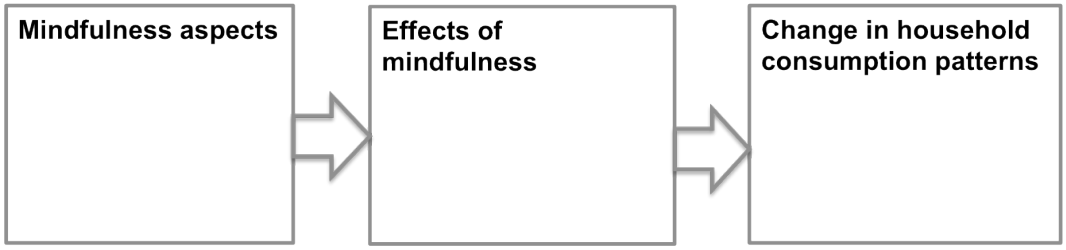


Figure 12: Step 1 - building the preliminary conceptual model

We then started to fill in the different building blocks of the model starting from the left, in this case the concept of mindfulness (see Figure 13). We selected Baer et al.'s (2006) interpretation of mindfulness because we thought that the fact that it breaks down the construct of mindfulness into different aspects may be useful to better understand the link between mindfulness and consumption. Moreover Baer et al.'s interpretation represents a synthesis of all existing mindfulness scales and is used and cited in many other researches on the effects of mindfulness (see paragraph 2.3.1).



Figure 13: Step 2 - building the preliminary conceptual model

Based on the literature found in paragraph 2.3.3, we listed the effects of mindfulness that may to play a role in the link between mindfulness and sustainable consumption (see Figure 14).

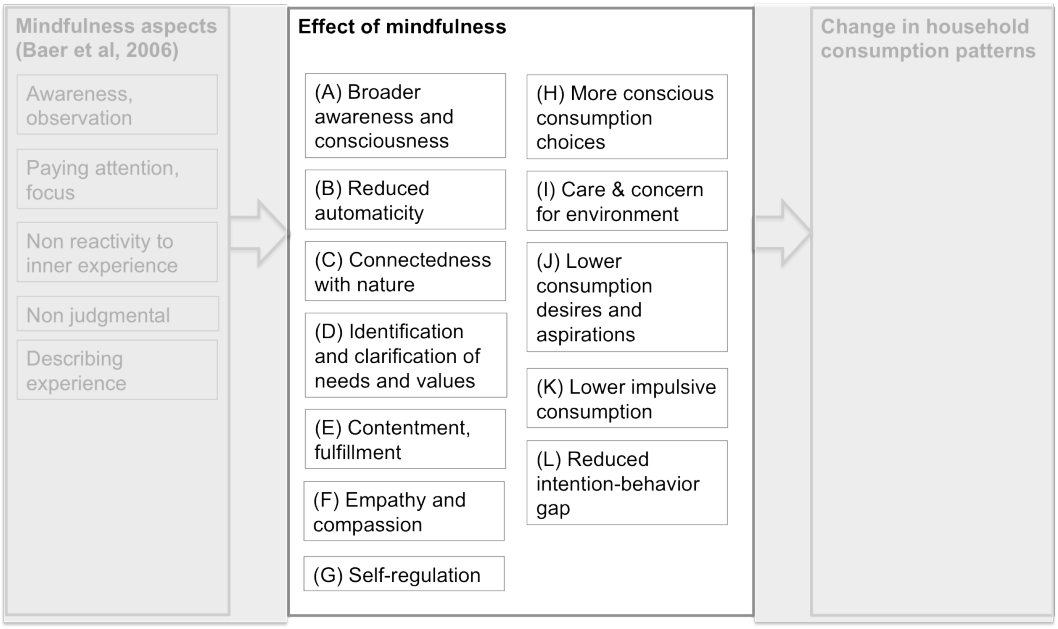


Figure 14: Step 3 - building the preliminary conceptual model

We then differentiated the more direct effects of mindfulness from the consumption related (indirect) effects (see Figure 15). We made this distinction based on whether the effect is directly correlated to mindfulness in literature or not.

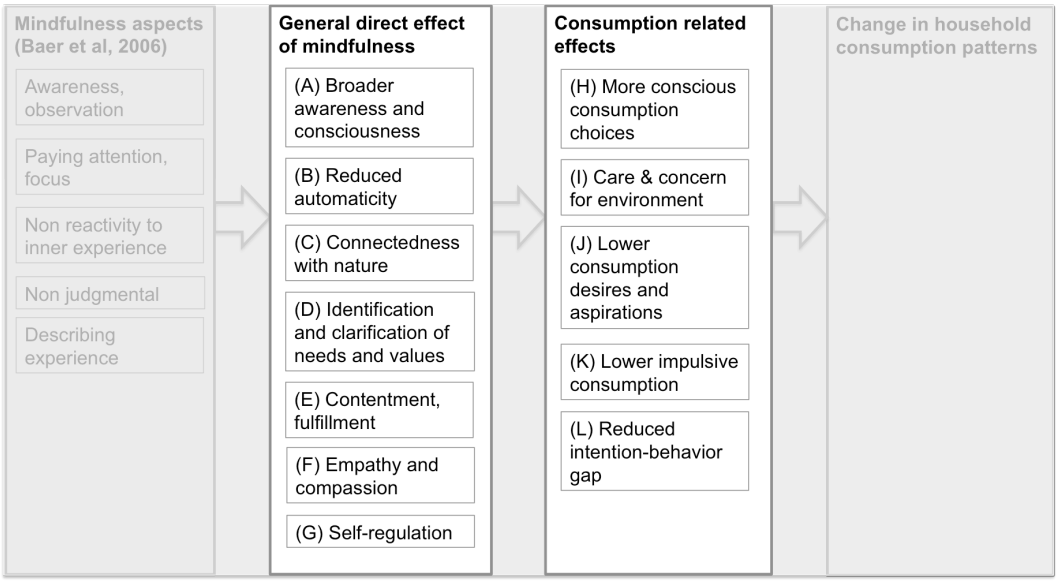


Figure 15: Step 4- building the preliminary conceptual model

Looking closer at the *consumption related effects*, they seemed to be of two different natures. Intuitively, we interpreted that *more conscious consumption choice*, *care & concern for the environment,* and *lower consumption desires and aspirations* may affect individuals' motivation to change consumption patterns for instance towards more conscious, eco-friendly and reduced consumption patterns. In contrast, *lower impulsive consumption* and *reduced intention-behavior gap*

would not affect people's motivation to change but rather their ability to change, for instance behaving in a more integrated and less impulsive way. Thus, we split the *consumption related effects* in into *motivation to change* and *ability to change* (see Figure 16).

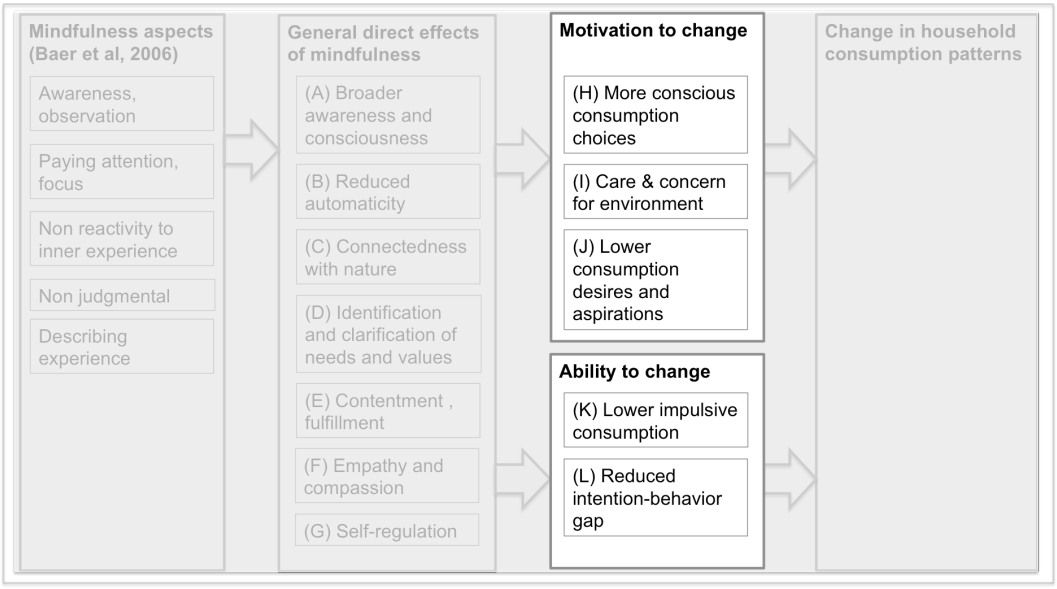


Figure 16: Step 5- building the preliminary conceptual model

To fill in the last building block of the model and since the literature on mindfulness does not cover *household consumption patterns*, we used intuitive reflection (see Figure 17). The elements in this building block were meant more as placeholders as changes in household consumption patterns would be studied in the second stage of this research.

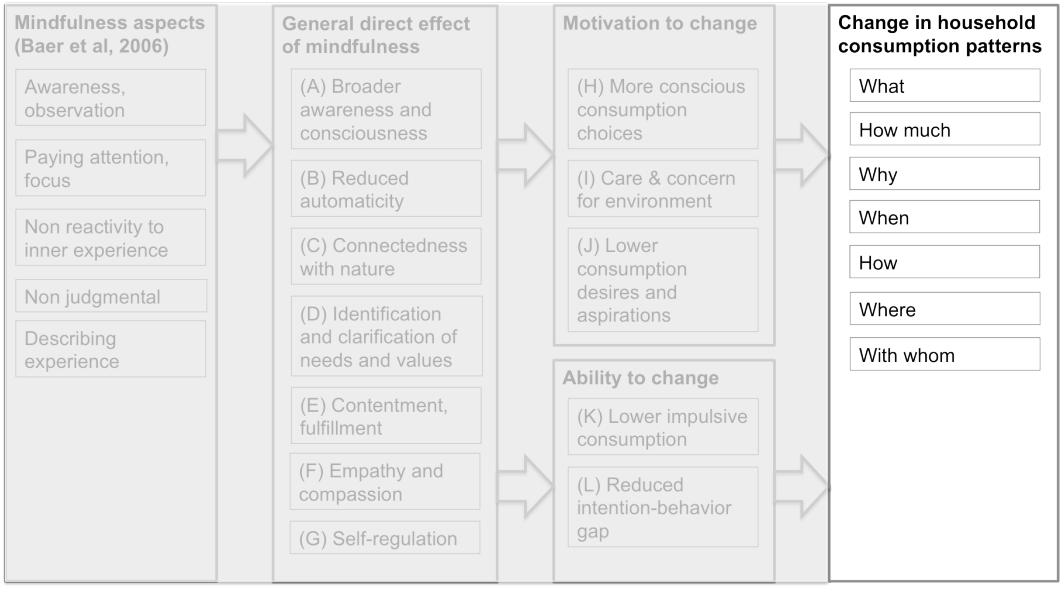


Figure 17: Step 6 - building the preliminary conceptual model

We then reflected on whether certain aspects of mindfulness might be more relevant than others for sustainable consumption. Since the aspects of *awareness* and *paying attention* are most mentioned in the literature linking mindfulness to sustainability (see paragraph 2.3.3), we assumed they might play a more important role and therefore distinguished them. We also assumed that some mindfulness effects might be more important than others in explaining the link between mindfulness

and consumption. Thus based on our intuition, we distinguished between more and less important elements (see Figure 18). We should note that we made this intuitive distinction to stimulate discussion in the member validation rather than to make a point.

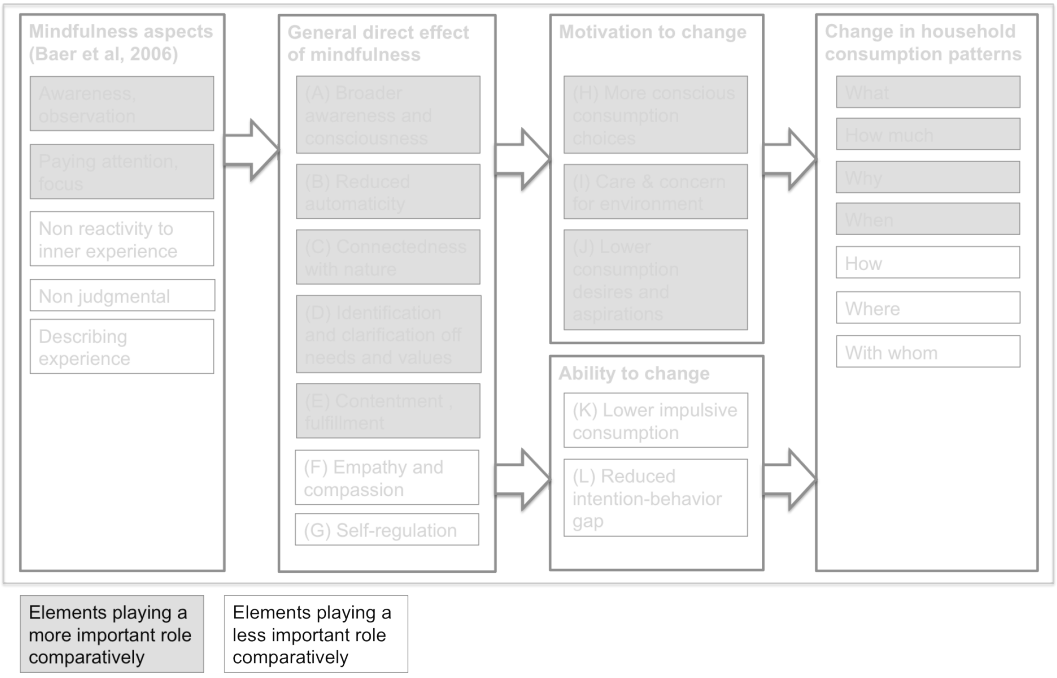


Figure 18: Step 8 - building the preliminary conceptual model

The above resulted in the following preliminary conceptual model (see Figure 19).

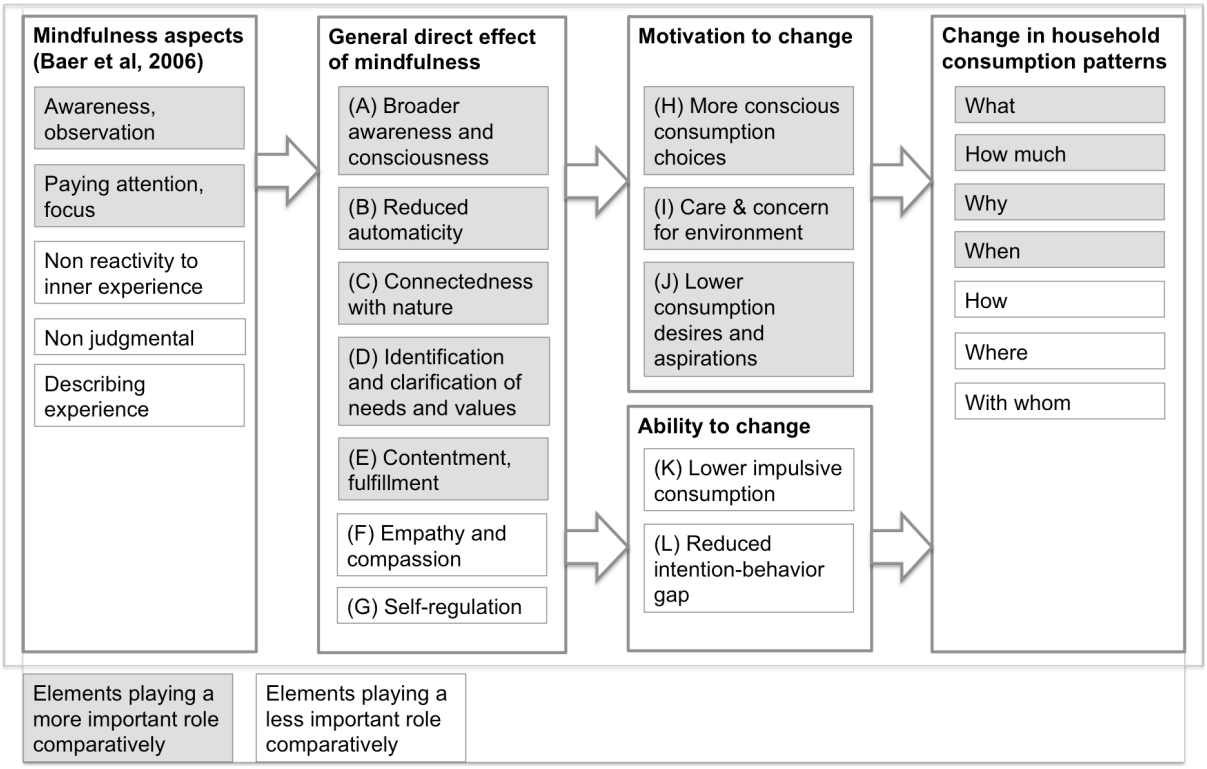


Figure 19: Preliminary conceptual model

This preliminary conceptual model attempts to explain the link between mindfulness and consumption patterns. It contains four building blocks, namely mindfulness practice aspects, directs effect of mindfulness, consumption related effect and changes in household consumption patterns. The first building block shows components of mindfulness practice according to Baer et al (2006). Given that there is no consensus on the definition of mindfulness and that it has been operationalized in different ways (Baer et al, 2006; Bishop et al, 2004; Brown & Ryan, 2004; Chiesa, 2012; Dorjee, 2010), this box may be open to discussion. The second and third building blocks show concepts linking mindfulness and consumption. These concepts have been identified mainly in mindfulness literature. However we can note that these concepts are also found in sustainability related literature, for instance in the area of strong sustainable consumption, consumer culture studies, voluntary simplicity, degrowth, environmental virtue ethics, environmental values, environmental behavior change and well-being. Some concepts (especially those in the second building block) are directly linked to well-being. The concepts in the second building block are also probably preconditions for concepts in the third building block. Besides, we can note that some of these concepts, for example *contentment and fulfillment, empathy and compassion, care and concern for the environment, lower consumption desires and aspirations*, are perhaps *required* for a transition towards strong sustainable consumption. Finally, the last building block of the conceptual model is unknown and will be uncovered by the empirical part of our research.

5.2 Validation of preliminary conceptual model

Once the preliminary conceptual model developed, we validated it by interviewing experts and practitioners. We present here the outcome of this member validation. In order to contextualize it, we start by briefly introducing the 'members' as well as their experience in terms of mindfulness and changes in consumption patterns.

The scientific experts included:

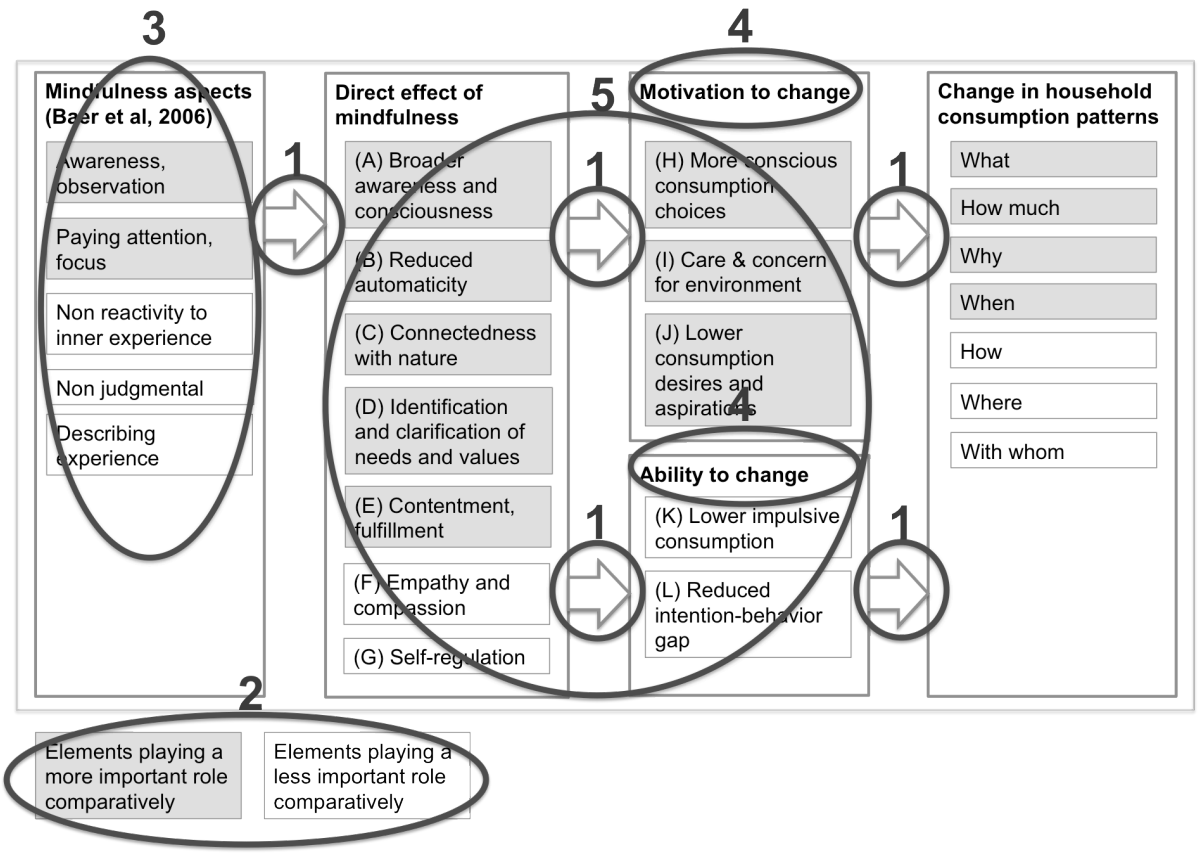
- Torgeir Ericson is the first author of the article "Mindfulness & Sustainability" published in the *Ecological Economics* (2014, *104*, 73–79). He works as researcher at the Center for international climate and environmental research (CICERO), Oslo, Norway. Ericson has been practicing mindfulness for 15 years. He wrote this article from his own initiative (i.e. not connected to any specific work project). Ericson's interest in the relation between mindfulness and sustainability came from his own practice. Since Ericson has also always been concerned about the environment and energy use, for him it is difficult to pinpoint the effect of mindfulness on his lifestyle. However he does believe that the practice strengthened his interest in sustainability. Also he noticed he is less influenced by advertisements and others, he does not feel the need to buy new stuff, his consumption desires and aspirations changed and he eats slower and less since he started to practice mindfulness.
- Christine Polzin is a PhD researcher on the topic of mindfulness and Behavioural Change Policy at the Helmholtz Centre for Environmental Research, Leipzig, Germany. She is doing her PhD thesis within the EU Green Lifestyles, Alternative Models and Upscaling Regional Sustainability (GLAMURS) project that is part of the EU's 7th Framework Programme for Research and Technological Development. She was previously working for the Sustainable European Research Institute (SERI), where she worked mainly on material flows analysis. At that time, she thought if she had to start over, she would like to do work related to mindfulness, as she felt more inspired by mindfulness than the dry work of material flows analysis.
- Alison Armstrong did her PhD thesis on "Mindfulness and consumerism: A social psychological investigation" at the University of Surrey under the supervision of Prof. Tim Jackson, author of the widely cited book "Prosperity without growth" and Prof. Birgitta Gatersleben. Her PhD took place within the RESOLVE (Research Group On Lifestyles, Values

and Environment) working group (which later on became the Sustainable Lifestyle Research Group (SLRG)). Armstrong came to her PhD topic through her Master Thesis, in which she focused on the link between spirituality and sustainable consumption behavior. She decided to focus her PhD on mindfulness rather than spirituality as she noticed that mindfulness was an easier concept to talk about then spirituality because of the reticence of many to the term 'spirituality'. But for her in the end "mindfulness and spirituality is all the same". She wanted to investigate more spirituality and mindfulness as she noticed that her practice changed her relationship to material goods. She is currently working as an independent mindfulness teacher, specialized in mindfulness as a cure to 'retail therapy' (i.e. addiction to shopping) as well as a part time self-funded researcher.

The practitioners included:

- Alexander Ettema started to practice mindfulness and Buddhism after a difficult life period three years ago. Ettema took quite drastic lifestyle changes since. He for instance gave away all his material possessions except for a few clothes, books, his saxophones and his laptop. His life became materially very simple. He recognized and deeply realized that "stuff does not contribute to my long-term well-being" whereas before he was always getting more and more stuff. Through mindfulness practice, Ettema also started to questions all his habits and routines, for example asking himself why do we shower? Can we shower differently? Do I need to shower everyday? Etc. He also started to feel the interconnectedness of our lives for example how the water we drink is the same as the water in the clouds and the sea. Ettema became detached from social norms and the influence of others and tries to live in his own way. He tries to do everything with care as caring is for him also a way to enter a mindful state of consciousness and a necessity to prevent harm to others and the environment.
- Jurrian Arnold has been practicing mindfulness since two years. Through the practice, he has become more aware of how he spends his leisure time, and for instance is more focused now on "meaningful leisure time" rather than "distracting leisure time". To him it feels "more real" what he wants and how he wants to live. The practice also made him "see through the seduction of material things". He can just observe and "let go of urges" to buy things and he ponders about his "real" needs and what contributes to his happiness. He noted however that he was always looking for ways to live a meaning life. So for him this character trait, his lifestyle and his mindfulness practice all go together.
- Sebastiaan van der Elshout has been practicing mindfulness since five years. Through the practice, he has become more aware of his behavioral patterns and it has allowed him to choose patterns that help him be more complete, live healthier and with a minimum harm to others. For him, "feeling whole" and recognizing that we do not need so much stuff to be happy had an important influence on his lifestyle. He is also less affected by advertisement. He noted that he has always been quite conscious about how he lives, for example he has always been careful with water and energy use.

Figure 20 gives an overview of the insights gained from discussing with these experts and practitioners and Table 1 further explains the insights.



Overview of critical appraisal of member validation

① "It's difficult to say whether mindfulness and sustainable consumption are directly related"
"Actually, the relationship between mindfulness and sustainability is two ways"
"All elements are intermingled and interact"
② "It's difficult to hierarchize elements
③ "I miss the notion of 'present moment' in the mindfulness aspects?"
"I wonder whether mindfulness should be defined within an ethical context"
④ "The difference between ' motivation to change' and 'ability to change' is confusing"
⑤ "I recognize the linkages"

Figure 20: Overview of critical appraisal of the preliminary conceptual model

Table 1: Explanation of critical appraisal of the preliminary conceptual model

CRITICAL APPRAISAL	**MEMBERS**				
	Experts		**Practitioners**		
TE= T. Ericson, CP= C. Polzin, AE= A. Ettema, JA= J. Arnold, SE= S. Elshout	TE	CP	AE	JA	SE
"It's difficult to say whether mindfulness and sustainable consumption are directly related" The scientific experts noted I should be careful with the use of arrows in the model as they imply causality yet the nature of the relationship between mindfulness and consumption is uncertain. Literature mostly refers to correlations. All members agreed that we cannot exclude the possibility of a spurious relationship, e.g. that other (third) variables explain the relationship between mindfulness and consumption. For instance, it could	X	X	X	X	X

be that all mindfulness practitioners share certain characteristics. So although experts feel like mindfulness may directly impact consumption patterns, they also acknowledge that this feeling could be biased by their personal experience. Armstrong's words summarize this point: *"Imagine if a whole society practices mindfulness and imagine the impact in terms of empathy, compassion, understanding, tolerance, etc. It would be amazing. (…) But it is hard to say that there would definitely be a direct impact on consumption even though I would like to think that there would be but I have no evidence to suggest that; it is just a feeling and a hope."*					
"Actually, the relationship between mindfulness and sustainability is two ways" The practitioners highlighted that the relationship between mindfulness and sustainability is two-ways. Mindfulness can be practiced in each and every daily activity (e.g. cooking, eating, gardening, working, walking, etc), hence our lifestyle and consumption patterns can reinforce our practice of mindfulness. For example, if our lifestyle includes gardening, the more we garden, the more mindful we become. Moreover, our lifestyle and the material context of our lives also influence our level and ability to be mindful. For example, the more materially simple our lifestyle is the less distractions and the more room and space there is for mindfulness. Hence there is probably a positive feedback loop between mindfulness and consumption patterns.			X	X	X
"All elements are intermingled and interact" The scientific experts also commented that the linkages within the model are likely to be more complex than simple one-headed arrows. The elements for instance might reinforce and strengthen each other and have a mutual impact. Ericson gave the example of *empathy* being perhaps a prerequisite for *connectedness with nature*. The difficulty to organize the elements of the model also became apparent as the members questioned the placement of certain elements and suggested that it is difficult to say what is an effect of what. Besides, it seems that it is both the performance of mindfulness and the outcome of mindfulness that may have an effect on consumption patterns. Also it is difficult to distinguish clearly between them, for example is *greater awareness of needs* an outcome of the practice or a part of the practice?	X	X	X	X	X
"It's difficult to hierarchize elements" There was no clear-cut feedback on whether some elements were more important than others in the model mainly because of the complex relationship between elements. For example, in terms of mindfulness aspects, the role of *awareness* and *non-reactivity/disidentification* was much discussed. But it was also noted that it is difficult to distinguish the effect of each aspect of mindfulness and it is probably the practice as a whole that contributes to many of the effects. Also, since all elements are interconnected to some extent, it does not make full sense to distinguish or hierarchize them.	X	X	X		X

"I miss the notion of present moment in the mindfulness aspects" The scientific experts questioned the choice and appropriateness of Baer et al's conceptualization of mindfulness. They thought it was too narrow and for instance missed the notion of *'present moment'* which is central in mindfulness.	X	X			
"I wonder whether mindfulness should be defined within an ethical context" All members raised the question on the need (or not) to define mindfulness within an ethical context and as meant originally in Buddhism for instance. Perhaps, mindfulness alone (without ethical context) would not lead to sustainability. Ericson's words summarized well the concern: *"Could we expect that the US military who started to provide mindfulness training put down their weapons suddenly because they start to train mindfulness? Or is mindfulness in that case just a tool for better killing? Could you expect that Shell would start doing something different because their employees are training mindfulness? Or is it just a tool for increasing profit? (…) Maybe if you just use mindfulness for profit, if you bring it to your company so that you get less stressed employees so that they can work harder or make more profit, that is not necessarily sustainable. Or if you use mindfulness for better war force. For example, warriors from the East before used meditation to train themselves to be efficient in combat, that also is not sustainable"* On the other hand, the scientific experts also pondered that an ethical dimension is generally present albeit implicit in secular mindfulness training and such training does develop empathy, compassion, etc. Indeed all the literature on which the preliminary conceptual model is based on a secular interpretation of mindfulness. The overall feeling amongst the members was that an ethical context and an intention behind mindfulness practice that is greater than just 'boosting one's success' if not absolutely necessary would at least enhance the relationship between mindfulness and sustainability. Armstrong frames a missing ethical context nicely as a 'missed opportunity': "*I feel quite strongly that mindfulness is not helped by it being removed from the ethical and moral context that Buddhism would give it. Although I teach the standard eight-week Mindfulness Based Stress Relief (MBSR) course, I feel the impact of it in terms of sustainability could be much greater if there was a stronger emphasis on ethics and morals. I think it is not something socially acceptable to say because people want the freedom to define their own ethical and moral framework. But at the same time I think that it is a disadvantage that currently mindfulness does not include that. I do think that in our practice, the kind of 'correct' ethical and moral foundation that would include compassion and empathy and all those other things does develop anyway. But I think it could develop more quickly and more strongly if it was made more explicit in the training. I just think it is a missed opportunity. (…) I do not see any problem at all with learning mindfulness techniques for basic stress or anxiety issues. Why not, it works, you know. But if we are talking of having a sort of more global, ethical or moral*	X	X	X	X	X

concern about the environment and other people than I think that the moral foundations needs to be more explicit."					
"The difference between *motivation to change* and *ability to change* is confusing" The members also challenged the use of the labels *ability to change* and *motivation to change*. These labels were perceived as confusing. Members mentioned it was unclear what to understand by those terms and what the difference was between them.	X	X		X	X
"I recognize the linkages" Regarding the linkages, in general, practitioners mentioned many of them before being shown the conceptual model and could recognize the other linkages. They commented that *connectedness to nature* was to narrow and should rather be *interconnectedness*. The scientific experts also overall validated the linkages, in some cases they made some suggestions of modification. For instance, *reduced automaticity* and *self-regulation* are closely related and perhaps can be grouped and similarly to what practitioners suggested; *connectedness to nature* could be named *interconnectedness*.	X	X	X	X	X

5.3 Improved conceptual model

Based on the member validation, we made the following changes to the preliminary conceptual model. We drew two-way arrows instead of one-way arrows to avoid implying a causal relationship and to show that every thing is interconnected (see Figure 21).

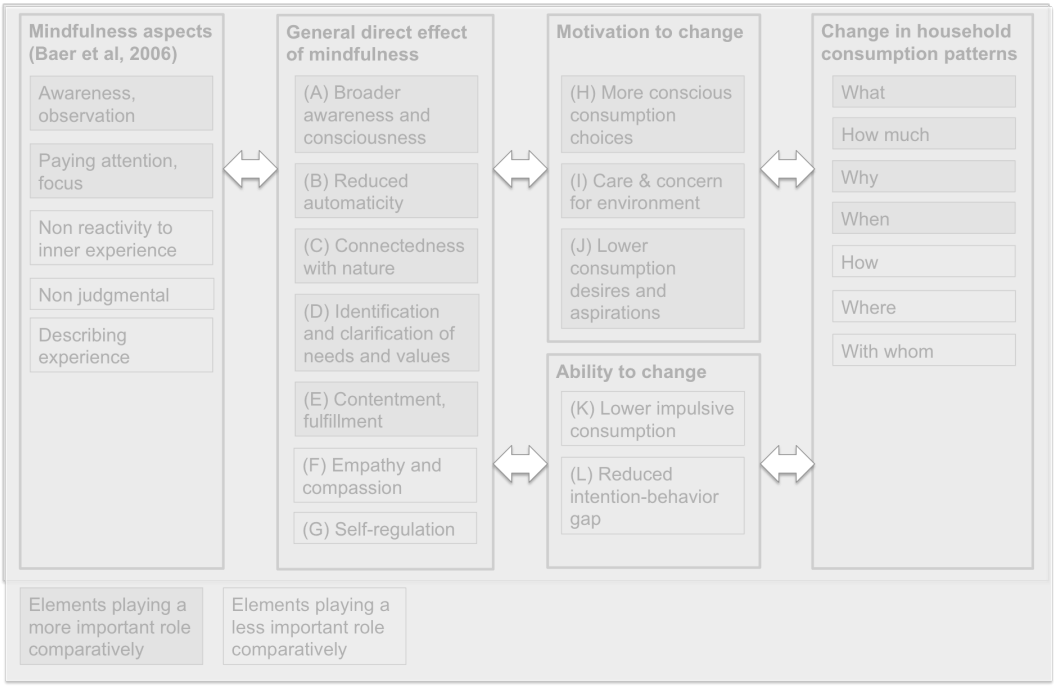


Figure 21: Step 1 - improving the preliminary conceptual model

We removed the importance of elements (see Figure 22).

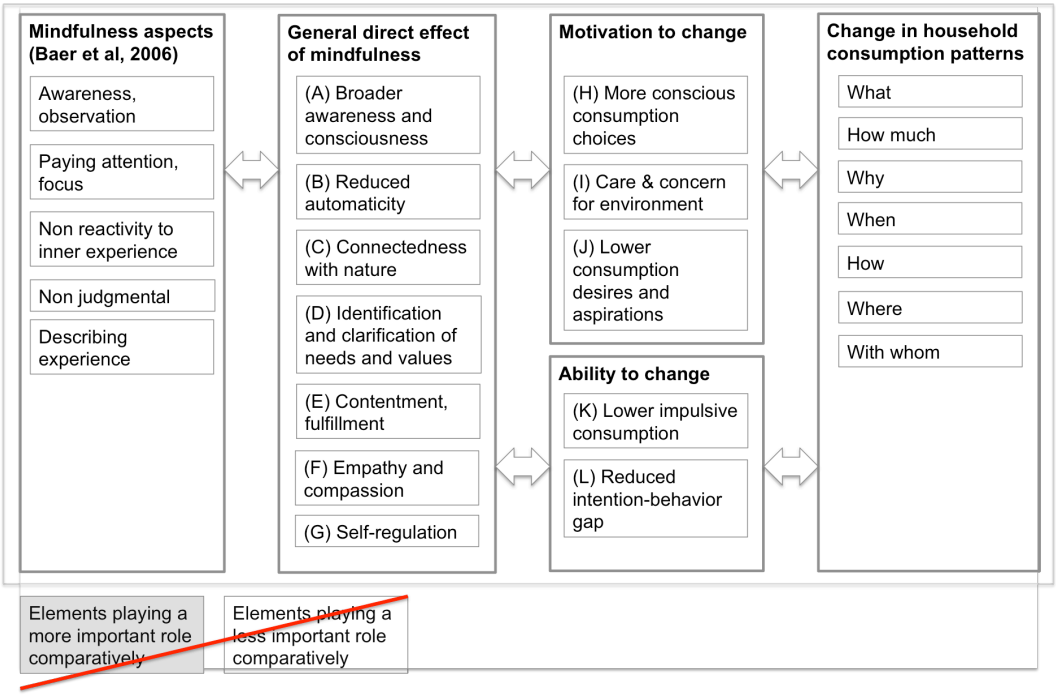


Figure 22: Step 2 - improving the preliminary conceptual model

We added present moment to the mindfulness aspects (see Figure 23).

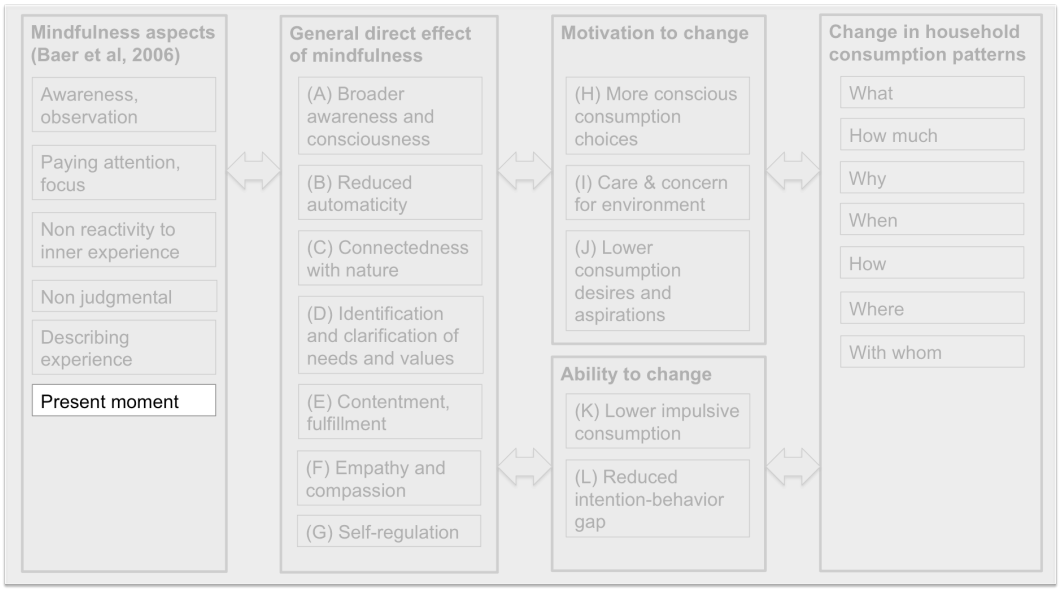


Figure 23: Step 3 - improving the preliminary conceptual model

We removed the labels *ability to change* and *motivation to change* (see Figure 24).

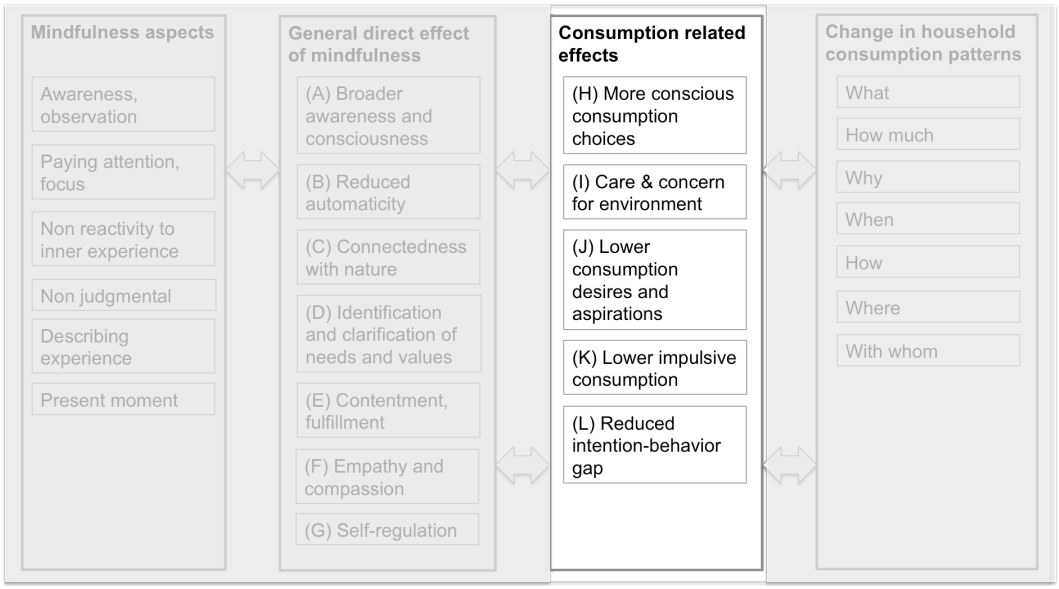


Figure 24: Step 4 - improving the preliminary conceptual model

We merged *reduced automaticity* with *self-regulation* and changed *connectedness to nature* to *sense of interconnectedness* (see Figure 25).

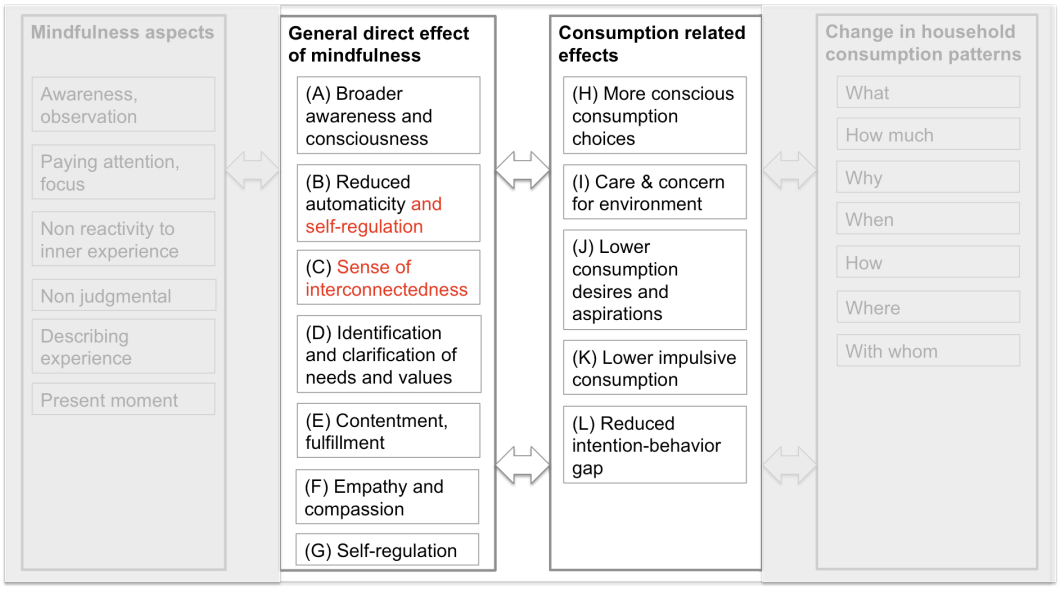


Figure 25: Step 5 - improving the preliminary conceptual model

These changes resulted in the following improved conceptual model (see Figure 26).

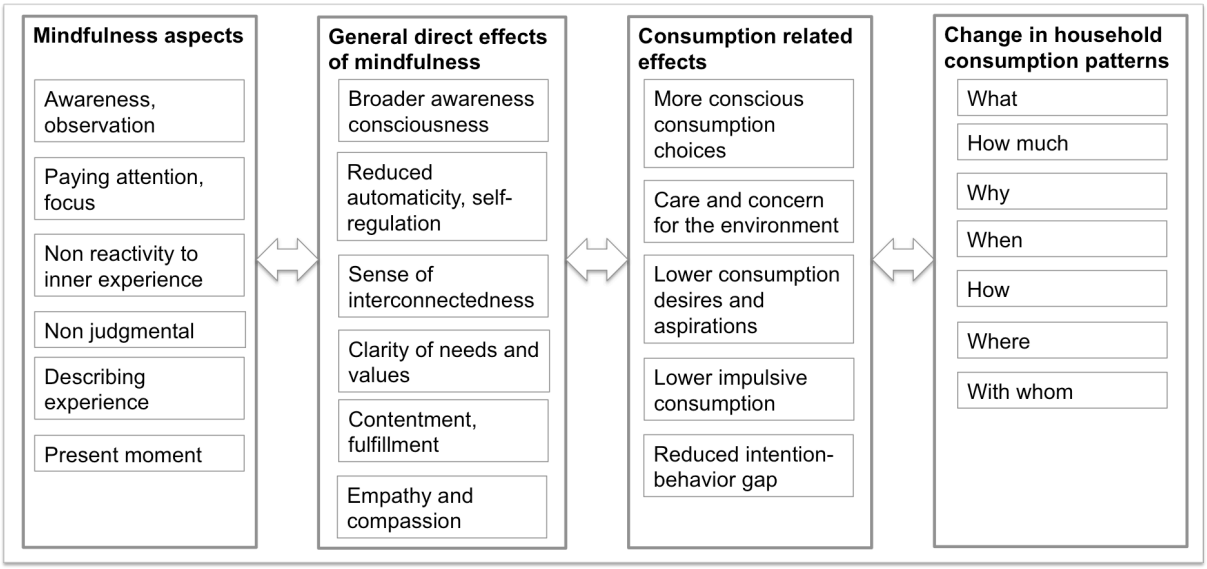


Figure 26: Improved conceptual model

This improved conceptual model retains the basic structure and ideas of the preliminary conceptual model. However it uses double-headed arrows to indicate that everything is interrelated and to avoid implying causality (whereas causal relationships have not been proven). Compare to the preliminary conceptual model, it has been simplified on some aspects for instance the differentiation between 'motivation to change' and 'ability to change', as well as the differentiation between more and less important elements were removed. On other aspects, it has been further detailed; for instance the construct of 'present moment' was added to the mindfulness aspects, the elements of connectedness to nature was renamed 'sense of interconnectedness' and the elements of 'reduced automaticity' and 'self-regulation' were merged.

6 Empirical findings

This chapter presents the results of the empirical data collection on the effect (if any) of mindfulness on practitioners' consumption patterns. In order to contextualize the findings, we start by briefly introducing the interpretation and practice of the interviewees (section 6.1). In order to stay as close as possible to the interviewees' words, we make use of their expressions as much as possible. These expressions are put into quotation mark. We then interpret respectively the general and the sustainable consumption related processes with mindfulness (section 6.2 and section 6.3). Since these sections are based on an interpretation of interviewee's responses, we use quotes from transcripts to illustrate our analysis. Finally, we describe the concrete changes in consumption patterns that interviewee's reported (section 6.4). Note that in this chapter we present findings, while in chapter 7 we discuss and analyze the findings.

6.1 Interviewees' interpretation and practice of mindfulness

As discussed in section 4.3, we started the interviews by asking how the interviewees interpret the concept of mindfulness, and how they relate mindfulness to their own life. To the question "what does mindfulness mean to you?", interviewees' responses deferred in formulation but they were more or less similar in content (see Table 2). Expressions reflecting being in the present moment (e.g. 'present moment', 'in the moment', 'here & now') and cultivating awareness (e.g. 'awareness', 'seeing what is happening', 'looking deeply') were recurrent. Ideas related to attention (e.g. 'focus', 'attention', 'concentrating', 'stop distracting my mind') and acceptance (e.g. 'accepting what is', 'staying with difficult emotions', 'being with whatever is', 'allowing discomfort to be') were also mentioned. Further, some interviewees described mindfulness as a way of life (e.g. 'a way of being', 'a way of life', 'a way of becoming free') and/or a mind training (e.g. 'knowing how the mind works', 'training the mind', 'getting out of my usual thinking routine'). One interviewee defined mindfulness explicitly as a 'spiritual' practice. Besides a few mentioned the 'breath' as an important element of mindfulness, e.g. an anchor.

Table 2: Overview of interviewees' interpretation of mindfulness

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
MEANING OF MINDFULNESS											
Being in the present moment	X		X	X	X	X	X	X	X	X	9
Awareness	X	X		X		X	X	X		X	7
Attention	X		X				X				3
Acceptance	X		X				X				3
Way of life		X	X		X			X			4
Mind training					X			X			2
Spiritual				X							1
Breath as an anchor			X						X	X	3

To describe their own mindfulness practice, all interviewees mentioned they tried to practice mindfulness in their daily life (including working and parenting) (see Table 3). They used expressions like 'in all aspects of my life', 'with everything I do', 'as much as I can', 'throughout the day', 'in my everyday activities', 'in daily life', 'in my job', 'at work', 'with my daughter/son'. However all interviewees also emphasized that mindfulness is a journey and that they 'try' to always be mindful but it demands continuous commitment. They expressed for example 'I do not always succeed', 'there are moment I completely forget [about being mindful]', 'it's not always working', 'it's a path and not a straightforward one, it's bumpy sometimes', 'it's a journey with ups and downs', 'it's a commitment', 'it's becoming more and more natural ', 'it gets easier'. Several of the interviewees established a system of 'reminders' of the practice by using environmental triggers (e.g. the telephone or the doorbell ringing), daily activities (e.g. cooking) or scheduled 'time out'. Most of

them practice meditation (e.g. practice mindfulness formally) on a daily basis to cultivate mindfulness.

Table 3: Overview of interviewees' description of their own mindfulness practice

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
MINDFULNESS PRACTICE											
In daily life (including working and parenting)	X	X	X	X	X	X	X	X	X	X	10
A journey	X	X	X	X	X	X	X	X	X	X	10
System of reminders or routine						X			X	X	3
Daily meditation	X	X		X	X	X		X	X	X	8

The intention behind practicing was a bit different from one interviewee to another but generally it was about 'stillness', 'coping' (with difficult emotions or chronic pain), 'connectedness' (with self & others), 'compassion', 'happiness', 'peace of mind', 'concentration', 'freedom', and 'insight' (see Table 4). Some interviewees also pointed out that their intention changed over time (e.g. first focused on connectedness with self and then more on compassion for others) and can also change from one day to another (e.g. coping with one's chronic pain or being available and present for others).

Table 4: Overview of interviewees' intention behind mindfulness practice

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
INTENTION BEHIND PRACTICE											
Stillness	X					X				X	3
Coping			X				X				2
Connectedness with self	X	X			X	X					4
Connectedness with others		X									1
Compassion		X	X	X			X				4
Happiness	X			X							2
Peace of mind						X					1
Concentration	X					X					2
Freedom		X	X		X				X		4
Insight				X						X	2

The reasons or rewards that motivate the interviewees to continue practicing were similar to the intentions (e.g 'stillness', 'coping', 'connectedness', 'compassion', 'happiness', 'peace of mind', 'concentration', 'freedom', and 'insight') (see Table 20).

Table 5: Overview of interviewees' perception of the rewards of mindfulness practice

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
REWARDS OF PRACTICE											
Stillness	X					X	X				3
Coping		X				X	X			X	4
Connectedness with self	X					X				X	3
Connectedness with others		X		X							2
Compassion		X				X					2
Happiness	X			X						X	3
Peace of mind						X	X			X	3
Concentration	X	X	X			X					4
Freedom			X		X				X		3
Insight	X									X	2

6.2 General direct effects of mindfulness

Our conceptual framework distinguished six general direct effects of mindfulness related to sustainable consumption, namely 1) broader awareness and consciousness, 2) reduced automaticity and self regulation, 3) sense of interconnectedness, 4) clarity of needs and values, 5) contentment and fulfillment, and 6) empathy and compassion. We use these themes to analyze and present our results. These are further explained in the remaining of the section.

6.2.1 Broader awareness and consciousness

All interviewees reported signs of broader or deeper awareness and consciousness (see Table 6). The object of awareness and consciousness ranged from self-awareness (e.g. being aware of 'what I am doing', 'what I am saying', 'the speech I am using', 'what my heart is saying', 'unconscious fears', 'where and how I am and what I do') to social and environmental awareness (e.g. being aware of 'the energies around me', 'how what I say is going to affect another person', 'what is going on around me', 'the environment', 'nature'). For example, for interviewee #10 mindfulness made him more aware of what he does but also the effect of his behavior on the world:

"Mindfulness makes me more aware of what I do, what my place is in society, the influence of my behavior on myself and on my environment so the other people in society and the Earth. I think mindfulness opens your eyes " (Interviewee#10)

Awareness was associated with seeing more clearly or differently. Interviewee #4 for example made the metaphor that it is as if she is wearing clean glasses that allow her to see clearly at all times.

"I see more. I see more clearly. I wear glasses and it is like if my glasses are always clean. I notice that many times I see more clearly. I see the sky differently. I see the leaves differently. Not differently but clearly." (Interviewee #4)

Table 6: Overview of the broader awareness and consciousness element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
BROADER AWARENESS AND CONSCIOUSNESS	X	X	X	X	X	X	X	X	X	X	10
Self-awareness	X	X	X	X	X	X	X	X	X	X	10
Social and environmental awareness	X	X	X	X	X		X	X		X	8
Seeing clearly or differently				X		X		X	X	X	5
No wrong perceptions									X		1

6.2.2 Reduced automaticity, self-regulation

Interviewees did not mention explicitly having 'reduced automaticity' or better 'self-regulation' (see Table 7). However five interviewees referred to being more able to recognize and break patterns or habits and choose how to behave rather than follow automatic reactions. They used expressions such as 'seeing patterns', 'changing patterns', 'becoming conscious of my habit', 'changing bad habits', 'breaking habits', 'being more able to choose my reaction', 'getting out of my usual thinking routine', and 'being free of my usual traps of thinking and feeling'. Interviewee #8 illustrates how mindfulness made him become conscious and able to change a habit taken for granted (e.g. drinking wine) and inconceivable to change:

"I am French and I had the habit to drink wine. It was something I found normal. You drink a glass of wine with your cheese, with your meal, etc. You would have told me 10 years ago that I would hardly drink wine anymore, I would have laughed at you. But that's what happened. I realized that drinking wine was just a habit." (Interviewee #8)

The habits and patterns they referred to were behavioral, cognitive and emotional. For example, interviewee #5 mentioned how he was more able to regulate the 'patterns running in his mind' but also his 'patterns of eating sugar, chocolate bars, etc.':

"I have the feeling that since I practice mindfulness, I am getting away from a state of suffering of automatic patterns running in my mind more to being able to decide which kind of pattern is running at the moment. (…) Years before, I would go out and think 'oh I want to eat that chocolate bar' and I ate that and I only tasted it with my tongue. But now I see the pattern of greed behind that and the need for intense taste." (Interviewee #5)

Table 7: Overview of the reduce automaticity and self regulation element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
REDUCED AUTOMATICITY, SELF REGULATION	X	X	X		X			X			5
Recognizing and changing habits					X			X			2
Behavioral	X	X			X			X			4
Cognitive			X		X						1
Emotional		X			X						2

6.2.3 Sense of interconnectedness

Most interviewees mentioned feeling a greater sense of interconnectedness (see Table 8). They referred to for example 'feeling connected with the world', 'feeling connected with every single being', 'feeling connected with the planet', 'feeling connected with the environment', 'feeling everything is one', 'feeling everything is interrelated', and 'feeling we inter-are'. This sense of interconnectedness was often attached directly to a sense of protection and care. For example interviewee #6 states that it makes her more conscious about not hurting anyone and more caring:

"Now, I feel connected with the world. (…) I am conscious that everything is one; that if I hurt someone, I also hurt myself and I also hurt the world. I have a larger perspective of things. I always thought I do not want to hurt my friends, but the circle around them I did not think about. It's not that I generally hurt people but I just did not think about it." (Interviewee #6)

This sense of interconnectedness triggered a sense of protection not only for human beings but also for the natural environment as the following quote illustrates:

"I feel more connected with the environment and the world around me and I feel the need to save it. It is something that I really got in my guts now due to mindfulness, not something that I realized because I am thinking about it, and I understand it in a cognitive way."(Interviewee #5)

Table 8: Overview of the sense of interconnectedness element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
SENSE OF INTERCONNECTEDNESS	X	X		X	X	X	X	X		X	8
Feeling interconnectedness	X	X		X	X	X	X	X		X	8
Sense of protection for human being						X					1
Sense of protection for the environment		X			X						2

6.2.4 Clarity of needs and values

Interviewees did not explicitly mention that they had more clarity in their needs and values (see Table 9). However they all alluded to knowing themselves better and being able to live in congruence with their values. For instance, they expressed 'understanding myself better', 'becoming more myself', 'knowing myself better', 'feeling I know who I am', 'being more myself', 'becoming more myself, and 'knowing my real needs'. This greater self-understanding was sometimes related to self-leadership e.g. 'knowing what I want to do in life', 'knowing how I want to live', and 'being clearer

with what I want and do not want in life'. Interviewee #10 illustrates this aspect by referring to becoming a 'new' person who is in touch with himself and who think differently about where he wants to go in life:

"The old me was not so in touch with life. He was more in touch with career, respect from colleagues, wanting to be seen, things like that. With mindfulness, it opened my eyes, I saw there is so much more than career, money and gaining respect from others. (…) Mindfulness changed how I think about life and where I want to go". (Interviewee #10)

Interviewee #2 explicitly related better understanding herself to something empowering and a feeling of 'being a real person'.

"I feel like I know who I am now. And I understand my emotions now and I understand what suffering is, what sorrow is and that I have choice to live the life that I choose. It is empowering. I feel like a real person. " (Interviewee #2)

Another aspect of clarity of needs and values was an ability to live 'my own way of life', 'not caring what other people think', 'not attached to other people's opinion', 'not scared anymore of what people may think', 'free from the judgment of others', and 'being in harmony with myself'. Interviewee #4 illustrates for example how she has more confidence to be herself and not follow social conventions even if this means being laughed at:

"An interesting thing I noticed is that I no longer really care what anybody else thinks about the way I do things because I know it is right. For example, if some people laugh at me about not killing snails. I just say 'I will not kill snails' and they laugh and they joke about it and so what? I do not care anymore. Whereas before I would care a little bit 'Oh they think I am a little bit crazy'. Now, I do not care because I know in my heart that it is the right thing to do." (Interviewee #4)

Knowing themselves better and being more detached from other people's appreciation also allowed several interviewees to detach from looking for status. For interviewee #5 for instance, it allowed him to move away from the need to be important, well known and successful.

"Years before, I would aim to be the best doctor in my field, being important and being well-known for my knowledge or my sport activities. (…) I really needed people to appreciate my work and the things I say and do as a doctor or as a sportsman. I was always looking for applause. I always wanted people to say 'oh this is doctor [name], he is one of the best'. But (…) mindfulness brought me to a point that I was able to free myself from the appreciation of people around me and I do not have the need to be important anymore. I just want to do a good job and do my best." (Interviewee #5)

Table 9: Overview of the clarity of needs and values found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CLARITY OF NEEDS AND VALUES	X	X	X	X	X	X	X	X	X	X	10
Self-understanding	X	X	X	X	X	X	X	X	X	X	10
Self-leadership		X	X	X						X	4
Empowerment		X									1
Living my own way	X	X		X	X					X	5
Detachment from status					X					X	2

6.2.5 Contentment, fulfillment

Feeling 'content', 'whole', 'satisfied', 'rich', 'fulfilled' was a recurrent theme in all interviews (see Table 10). This contentment and fulfillment was generally associated with a certain detachment of the external world and a shift from looking outwards for happiness to looking inwards. Interviewees

mentioned 'finding happiness inside', 'having an inner source of happiness', 'having a source of contentment or something', 'not needing external things to be happy', 'being happy in myself', 'being less dependent on the outside', 'needing less from the outside', 'being detached from specific aims', 'being detached from what I would like to have', and 'not needing things, places and other people to make me happy'. Interviewee #1 illustrates for example how instead of continuously seeking after short-lived happiness outside of herself, she could find happiness inside herself.

"I used to find my happiness outside of myself. I was always looking for things and people, thinking that that might make me happy. That was also always based on fear. I would depend on something outside of me. So that was never something long term. With mindfulness, I have learned to find happiness more inside myself. That is what I treasure the most about mindfulness I think, that I found happiness more and more inside." (Interviewee #1).

This contentment and fulfillment was also associated with a sort of reevaluation of one's life situation or a new feeling of abundance. Interviewees used expressions like 'I can be happy with what I already have', ' I realize how privileged I am', 'I realize I have everything I need to live a happy life', 'I appreciate the things I already have', and 'I feel I already have so much'. Some interviewees also expressed that what made them happy became more simple e.g. stating 'less makes me happy', 'what makes me happy got more simple', 'I am more able to enjoy simple moments in life', and 'I need less than I previously needed to be happy'. Interviewee #5 for example mentioned how the simple fact of the sun shining or being with friends and family can make him feel happy and content:

"My happiness is not attached anymore to achieving specific aims. It can be that I am just waking up in the morning and the sun is shinning and I really enjoy that the sun is shinning. (…) I am more able to enjoy simple moments of living and being together with my friends or my wife and to enjoy that we are together." (Interviewee #5).

Table 10: Overview of the contentment and fulfillment element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CONTENTMENT, FULFILLMENT	X	X	X	X	X	X	X	X	X	X	10
Feeling contentment, fulfillment	X	X	X	X		X	X		X	X	8
Looking inwards for happiness	X			X	X			X			4
Reevaluation of one's life situation	X	X						X			3
Simpler source of contentment or happiness	X			X	X						3

6.2.6 Empathy and compassion

Empathy and compassion were found amongst all interviewees (see Table Table 11). The object of empathy and compassion included compassion for others, for nature, for animals as well as self-compassion. Empathy and compassion could be observed with expressions like 'helping people', 'being available and present for others', 'giving my attention, my time to others', 'trying to relieve suffering where possible', 'trying to practice listening deeply and with compassion', 'using meditation to send some energy to someone who needs it', 'engaging much more with people', 'respecting every living being also the animals and the trees', 'respecting life in every single form', 'being appalled by how animals are raised and slaughtered', 'not wanting to support' or 'not wanting to be part of' the meat industry, and 'seeing the suffering of the chicken. For interviewee #7 benevolence or 'being of service' was part of the practice.

"A big part of my practice is that I feel I am here to be of service." (Interviewee #7)

Self-compassion was also observed. Expressions like 'I do not blame myself', 'I do not force myself, 'I do not impose to myself', 'I look after myself better', and 'now I think "I am the way I am"' were

used. For example, interviewee #1 mentioned how she did not blame herself anymore if she would eat unhealthily:

"I used to eat when I was stressed so my body would also get stress. It was a vicious circle. Right now, I do not blame myself when I am doing it because that is also making it worse." (*Interviewee #1)*

Self-compassion also led interviewee #3 also to change his attitude towards eating but in a different way: he started eating meat again as he realized that he was forcing himself to be vegan.

"Before I had an intellectual understanding of vegan being the best way to eat but I was not feeling it; I did not have compassion for the animals. I just had this intellectual and rational thought that it was the good way of living and I wanted to be good so I had to be vegan. So I actually forced myself to be vegan. And when I became more mindful, I realized I am not doing this with my heart, I am just pushing myself, I am punishing yourself, I am forcing yourself. And then I stopped because it did not feel right. Then I ate a lot of meat again. Now I am actually eating less meat and dairy products again." (Interviewee #3)

Table 11: Overview of the general direct effects of mindfulness found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
EMPATHY AND COMPASSION	X	X	X	X	X	X	X	X	X	X	10
Empathy and compassion for others	X	X	X	X	X	X	X	X	X	X	10
Compassion for nature	X	X		X	X	X	X	X		X	8
Compassion for animals	X	X	X	X			X				5
Self-compassion	X	X	X	X	X	X	X	X	X	X	10
Benevolence							X		X		2

6.3 Consumption related effects

Our conceptual framework distinguished five consumption related effects of mindfulness, namely 1) more conscious consumption choices, 2) care & concern for the environment, 3) lower consumption desires and aspirations, 4) lower impulsive consumption, 5) reduced intention-behavior gap. We use these themes to analyze and present our results. These are further explained in the remaining of the section.

6.3.1 More conscious consumption choices

All interviewees made more reflective and conscious (rather than automatic) consumption choices (see Table 12). Whilst talking about the effect (if any) of mindfulness on their general lifestyle as well as on their eating, mobility and living habits in particular, they used expressions like 'being aware', 'being conscious', 'noticing', 'realizing', 'now I think more', 'now I think of that', 'previously I did not think of that', 'I am careful about', 'I question', and 'I can see deeply that if I … So I…'. This consciousness was observed in all kinds of mundane activities and was underlying interviewees' narrative of change in everyday life. Interviewee#4's narrative illustrates well the multitude of reflection points related to different domains of consumption for instance watching TV, showering, gardening, grocery shopping, and drinking tea. Interviewee #4 lessened her TV watching as she started to notice how much violence there is on TV and how it affects her consciousness:

"In the past, I think I did not even notice there is so much violence on TV and you might not see it if you are a big TV watcher. Now I see it instantly. So I am much more careful with what I watch. I watch very little really." (Interviewee #4)

Interviewee #4 reflected on how easy it is to use for example too much shampoo if she is not careful:

"You know the way you wash your hair, it is so easy to put far too much shampoo on. So I become much more careful with using only what I need and not a whole lot to put down in the water system." (Interviewee#4)

Interviewee #4 thought of collecting rainwater to avoid using purified water in her garden whereas before she did not think of doing that:

"I collect water from the rain in tanks so any water I need to use in the garden is from the rain. So I am not using water that is coming from the water system which has been purified. That was directly related to mindfulness (…), previously I did not think to do that." (Interviewee #4)

Interviewee #4 planned her shopping better and became for example more flexible with drinking tea without milk because she is more aware of the planet and all the ways in which without thinking we can damage it:

"I live in the middle of nowhere and if I do not think about what do I need for tomorrow and the next day and the next day, I could be sitting in the car and driving for 15 minutes to buy one litre of milk. But because I do not want to pollute the atmosphere by driving my car nor do I want unnecessarily burn a whole lot of petrol, I am very careful about my shopping. (…) Also if say I discover now that I do not have milk and I put milk in my tea, whereas a lot of other people would immediately sit in the car and buy milk, I don't, I say I can have tea without milk until the next time I will go to the shops. I think I am much more aware of the planet and all the ways in which without thinking we can damage it." (Interviewee #4)

For a few interviewees more conscious consumption was also related to being less sensitive to consumption conditioning. Interviewee #7 explains being less affected by advertisement allows her to question herself on the need for advertised products.

"I am less affected by advertisements and things like that. Although sometimes I see something and I think 'oh Jee that's really neat' and I will think 'do I need this or do I just want it' and then I can decide not to have it. But that's also with mindfulness."(Interviewee #7)

On the other hand, interviewee #9 decided to avoid rush hours as she noticed that she would otherwise buy things she does not need.

"I do not do my grocery shopping at the same time as everyone else; I avoid rush hours now because then I am more dispersed and I buy things that I do not need; I buy because it is on sale or it is cheap or because everyone is buying. If my attention is scattered I buy things on sale that I do not need. I will just follow what the system wants me to do and not be conscious about it. Mindfulness gives me space to step back before I do something" (Interviewee #9)

Table 12: Overview of the more conscious consumption choices element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
MORE CONSCIOUS CONSUMPTION CHOICES	X	X	X	X	X	X	X	X	X	X	10
General lifestyle	X	X		X				X			4
Eating habits	X	X	X			X		X	X	X	7
Awareness of impact of food on our body	X	X				X		X		X	4
Mobility habits				X	X			X			3
Living habits		X		X			X	X			4
Less affected by advertisement							X				1
Conscious about the effect of sales, etc.									X		1

6.3.2 Care & concern for the environment

All interviewees' narratives showed greater care and concern for the environment (see Table 13). They reported for example 'wanting to save the environment', 'trying to take care of the Earth', 'questioning what is wholesome for me and the environment', 'thinking of the planet we live on', 'finding important to focus more on the environment, 'trying to look at ways I can counteract any damage that I do to the Earth', 'understanding the need to do something that can positively affect the environment rather than negatively affect', 'choosing options that supports the environment', 'supporting eco-friendly ways of doings' and 'wishing better options would exist'.

Interviewees were concerned about environmental degradation in general (e.g. 'looking at what is good for the survival of the planet', 'hurting to see that the Earth is damaged', 'not wanting to poison the Earth'), pollution and emissions ('not wanting to contribute to air pollution', 'not wanting to pollute the atmosphere', 'avoiding CO2 emissions'), resource depletion (e.g. 'avoiding wasting resource', 'wanting to save water', 'wanting to save energy', 'avoiding to burn fuel', 'not wanting to burn a whole lot of petrol unnecessarily', 'there is not an endless supply for everything'), deforestation (e.g. 'avoiding contributing to the cutting down of trees') and protecting nature ('mourning about the loss of the beauty of the Earth', 'wanting to protect wildlife').

This care and concern for the environment was associated with thinking more of one's impact on the environment (e.g 'thinking about the effects I have on the environment more', 'being aware of my lifestyle and how all these elements in my lifestyle cause a lot of suffering', 'being more aware of the planet and all the ways in which without thinking we can damage it.'). Interviewee #5 for example explained how he switched from driving to work to cycling to work as he was thinking more of the effects he has on the environment.

"There were some years when I did not have a car even though I was living far from my work place. But it was a kind of philosophy to do it that way because I did not want to burn any fuel because of the environment. I wanted to show people that it is possible not to have a car and to live on the countryside and go cycling to work everyday 60km. I wanted to show people that it was possible. That also had to do with the insight I got through mindfulness because I was thinking about the effects I have on the environment more." (Interviewee #5)

One interviewee also mentioned that although environmental issues concern her, she is more dedicated to relieving the suffering of people.

"I know some people are so on the bandwagon of environmental issues and I agree we need to stop fishing, we need to stop cutting down trees, etc. but I cannot do it all. What I try to do is relieve suffering where possible. And it's just different." (Interviewee #7)

On the other hand, another interviewee considered the suffering of the planet just as important than the suffering of people, and proposed that we should mourn for the planet, just like we mourn for people.

"It hurts me to see that the Earth is damaged. I have a friend who says - and I agree with him - that we have to mourn for the Earth. If you loose something, you mourn about it. And we do not take the time to mourn about the loss of the beauty of the Earth, because there is a lot of pain and suffering." (Interviewee #10)

Table 13: Overview of the care and concern for the environment element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CARE & CONCERN FOR THE ENVIRONMENT	X	X	X	X	X	X	X	X	X	X	10
Deliberate environmentalism	X	X	X	X	X		X	X		X	8

Concern about general environmental degradation										X	1
Concern about pollution and emissions		X		X	X		X				4
Concern about resource depletion		X		X	X	X					4
Concern about deforestation		X					X				2
Concern about nature conservation				X						X	2
Thinking more of the impact of my lifestyle or behavior on the environment		X		X	X						3
Other priorities							X				1
Equality between nature and humans										X	1

6.3.3 Lower consumption desires and aspirations

Four interviewees reflected lower consumption desires and aspirations, expressing 'I do not need to consume', 'I do not need things', 'I do not feel the need to buy to feel happy', 'I do not need more and more [stuff]', 'I do not want always more', and 'I try to have less and less things' (see Table 14). This shift was generally associated with stronger intrinsic aspirations. For example, interviewee #8 decided to work less instead of receiving a pay-rise as he preferred to have time to do things that really matter to him:

"I have never been a big careerist. But still, there was a time in my life where earning more money allowed me to spend more money and where I thought evolving materially was part of evolving in life. Over the years, and it is uncontestably a product of mindfulness, I learned to appreciate fully what I already have and to detach myself of what I would like to have. I understand that what I would like to have is actually a creation of my mind. So I started to rather than receive a pay raise, to work less so that I would have time to do things that really matter to me." (Interviewee #8)

When asked whether mindfulness had an influence on what makes them happy, two interviewees recognized that though they need less they still have some material needs beyond the basics. For example, for interviewee# 4, it was her books and for interviewee #5 it was his holidays:

"I need much less from the external world. I should put a nuance in there, I do need my books. But I know for example that going into the town and buying things is not going to make me happy. I do not need things. I do not need to go and hear people singing unless I really want to hear someone singing. I need less than I previously needed to be happy" (Interviewee #4)

"I used to buy a lot of stuff for my sport activities, a new bike, new shoes, etc. I bought lots of cds. I went to the cinema, I do not do that anymore. (…) I buy less stuff but I buy more holidays options. (…) I am still a needy person, I really enjoy my holidays. I also take the plane to go on holidays and I really feel bad all the time when I am sitting in the plane but I really enjoy the holidays." (Interviewee #5)

Interviewee #1 reported finding different ways of enjoying what she already had; she would just remember the excitement of getting something new and not focus on what she does not have:

"I used to go to the city and just buy a lot of things because I like it and I would then feel happy for a moment, like 'oh look what I bought' and I would be so excited. I was always buying new stuff and always wanted more and more. But right now, (…) I am really happy with what I have got, and in a different level; I have maybe the same clothes as last year but then I remember what I experienced last year and that is also a treasure. I can find different ways of joy about same things. (…) I try to have less and less things or be happy with what I have got." (Interviewee #1).

Table 14: Overview of the lower consumption desires and aspirations element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
LOWER CONSUMPTION DESIRES AND ASPIRATIONS	X			X	X			X			4
Needing less	X			X	X			X			4

Stronger intrinsic aspiration								X			1
Still material needs beyond basics				X	X						2
Different way of enjoying what I already have	X										1

6.3.4 Lower impulsive consumption

Lower impulsive consumption was observed in three interviewees when talking about their eating habits (see Table 15). They expressed 'not just grabing food', 'not eating on craving', and 'not eating impulsively'. Interviewee #1 noted that she sometimes still eat impulsively but at least now she is aware of it:

"Sometimes when I am stressed the first thing I do is still to grab something to eat. But at least I am aware of it now. Awareness of something is already a start to change something. I am not yet as mindful as I would like to be with eating but still I am glad to have the awareness." (Interviewee #1)

Table 15: Overview of the lower impulsive consumption element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
LOWER IMPULSIVE CONSUMPTION	X	X			X						3
Not (or less) eating on craving	X	X			X						3
Still eating on craving sometimes	X										1

6.3.5 Reduced intention-behavior gap

A reduced intention behavior gap was not observed per se. However a shift in the relationship between intention and behavior was observed in three interviewees. When asked about the effect (if any) of mindfulness on their concerns about their environmental impact, several interviewees emphasized that it led them to a more internalized understanding of the need to protect the environment (see Table 16). They referred to having an 'understanding from the heart, 'not an intellectual understanding' of the need to protect the environment, that it was an 'internal conviction', an 'internal motivation', an 'internal reality', 'something I got in my guts' and thus they naturally started acting according to their intentions. For example, interviewee#4 reported how she now puts into practice much more her environmental awareness and how for example she would no longer have the reflex to buy industrial fertilizers, which she knows are not good for the environment:

"I was always aware, it was in my head, I knew, I understood what we were doing to the environment. I understood it but I did not practice it. Well, that's not right. I did not practice it anything as much like I practice it now. There is no doubt about that. When I was living in the city and had a small garden, I would buy fertilizers for the flowers. Now, I would not do that. All I have to do is collect certain plants and soak them in water and I have a beautiful fertilizer if I want. So even tough I had the information, I had the intellectual understanding of it, I am now putting it in practice. And that is thanks to mindfulness." (Interviewee #4)

One interviewee explained that this intrinsic motivation to be protective of the environment for him came from the fact that mindfulness made him more caring all together:

"In my life, there was a moment where I told myself 'it's good to buy ecological products, etc.' But that was my intellect speaking with a sense of responsibility. But now, I do these things naturally, and it is not because I took the habit of it because there are things that I do now that I did not do before. (…) It's not my intellect telling me I have to consider this and that. It's not something that I am imposing myself. It's something that comes naturally because as you are more connected with yourself, and take better care of yourself, you will automatically also take better care of what is around you and hence also nature." (Interviewee #8)

Table 16: Overview of the reduced intention-behavior gap element found in the empirical data set

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
REDUCED INTENTION-BEHAVIOR GAP				X	X			X			3
Internalized understanding of the need to protect the environment				X	X			X			3
Putting more into practice my environmental awareness				X							1
More caring all together								X			1

6.4 Changes in consumption patterns

We present here the changes in consumption patterns interviewees reported. These changes are categorized in general changes in lifestyle (paragraph 6.4.1), changes in food habits (paragraph 6.4.2), changes in mobility habits (paragraph 6.4.3) and changes in living habits (paragraph 6.4.4).

6.4.1 General changes in lifestyle

Mindfulness practice had an influence on the daily activities in which interviewees engaged (see Table 17). Recurrent changes were limiting multitasking and media consumption, and engaging more in spiritual activities (e.g. spiritual community gathering, retreats) and/or meditation and more 'me-time'. Some interviewees also reported they generally slowed down the pace of their life by planning less activities and/or by generally hurrying less often and/or by regularly 'doing nothing' or 'stopping' for a while. Some interviewees also mentioned they started to spend more time taking care of themselves and/or exercising and/or going out in nature and/or building or strengthening relationships.

Besides changes in time use, mindfulness also had an influence on the professional career of long-term practitioners e.g. more than 15 years. Two of them decided to quit their (well-paid) jobs as they wanted to do something they liked more. One then started as an independent in his field and the other decided to work part time and live more "humbly", with less income. Another interviewee choose to work less instead of earning more. The last long-term practitioners interviewed on the other hand did not need to work as she was on invalidity pension but she choose to work voluntarily as a social worker and therapist.

Table 17: Overview of interviewees' general changes in lifestyle

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
GENERAL CHANGES IN LIFESTYLE											
Multi-tasking less			X	X	X			X			4
Doing more spiritual activities		X		X	X	X	X	X	X	X	8
Meditating more	X	X		X	X	X		X	X	X	8
Having more me-time		X				X		X			3
Taking care of myself more				X		X	X	X			4
Planning less activities						X	X				2
Hurrying less					X	X		X			3
Stopping / doing nothing						X			X	X	3
Consuming less or more selectively media	X			X	X	X					4
Engaging in the real world more			X								1
Exercising more		X	X	X							3
Going out in nature more				X	X						2
Building/strengthening relationships		X	X				X	X			4
Working differently								X	X	X	3

6.4.2 Changes in food habits

Every interviewee mentioned his or her food habits changed 'a lot'. Interviewees talked about changes in food shopping, cooking and eating. Interviewees reported buying and eating more organic, healthy, and local produces (see Table 18). For a few, buying organic involved going to specialized (ecological) shops. Buying and eating healthy food involved for two of them to look at the composition of food products also. A few reported their grocery shopping changed, one interviewee for instance started to shop outside of rush hours. For other changes in grocery shopping habits was connected to changes in mobility habits (as we will discuss below).

All interviewees went towards mainly vegetarian or even vegan diets. However, one interviewee mentioned that just after he started to practice mindfulness he started to eat a lot of meat again whilst he was vegan before. He said he realized through mindfulness that he was forcing himself to be vegan and with mindfulness he started to have more compassion for himself and so stopped 'forcing' himself. He also mentioned however that he is now again reducing his meat consumption. Most of the interviewees mentioned they wanted to eat more healthily and some limited or quit drinking alcohol. Besides changes in what they ate, interviewees also mentioned how and why they ate changed. For instance they ate slower, less and with more attention; they took more time to smell, chew and savor food; they noticed when they were full; and ate less on cravings. An interviewee also mentioned that her eating habits changed simply as she felt much less stressed and thus stopped eating to compensate for it.

In terms of cooking, common changes were taking time to cook, enjoying cooking more (and taking it as an opportunity to practice mindfulness) and being more creative (because of the adoption of a vegetarian diet).

Table 18: Overview of interviewees' changes in food habits

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CHANGES IN FOOD HABITS											
Buying and eating organic / ecological	X	X		X	X		X	X			6
Buying and eating fresh / healthy food	X	X		X	X	X		X	X	X	8
Buying and eating local food		X		X							2
Eating mostly vegetarian[1], 'vegan[2]	X[1]	X[2]	X[1]	X[1]	X[2]	X[1]	X[1]	X[1]	X[1]	X[1]	10
Eating more meat			X								1
Drinking less or no alcohol		X					X	X			3
Grocery shopping outside of rush hours									X		1
Eating less		X	X			X		X			4
Eating slower			X			X		X	X		4
Eating mindfully	X			X	X	X		X	X	X	7
Chewing consciously	X	X									2
Savoring more	X	X				X		X		X	5
Eating less on craving	X	X			X				X		4
Cooking mindfully					X	X					2

6.4.3 Changes in mobility habits

Changes in mobility habits varied between interviewees but most of them mentioned they did not experience significant changes. Their mobility habits were mainly dictated by their need of mobility (e.g. defined by connected practices such as work, grocery shopping, etc.) which did not change. The most shared change was a change in holiday patterns and thereof in related mobility. All interviewees started to go to mindfulness or other spiritual retreats on a regular basis, varying between once every few months to once every few years (see Table 19).

Besides changes in mobility related to holidays, some interviewees mentioned they started to walk (mindfully) more and/or to cycle more, and/or to commute more by public transport and/or to drive

differently. The interviewees who had cars (7 out of the 10 interviewees) all mentioned they tried to minimize their emissions and fuel consumption, e.g. driving less, purchasing a low-emission car, and/or eco-driving. One interviewee was also planting trees to compensate her emissions. The same interviewee also changed her mobility habit by planning better her grocery shopping, by being more flexible with her eating habits, e.g. if there is no more milk, she will not go out to buy some but she will have her tea without milk.

Table 19: Overview of interviewees' changes in mobility habits

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CHANGES IN MOBILITY HABITS											
Different holidays	X	X	X	X	X	X	X	X	X	X	10
Cycling more		X	X		X			X		X	5
Walking more	X	X		X						X	4
Walking mindfully	X			X		X			X	X	5
Commuting by public transport more					X						1
Driving less		X	X	X	X		X	X			6
Driving more			X								1
Purchasing low emission car		X								X	2
Eco-driving					X						1
Planting trees to counteract driving emissions				X							1

6.4.4 Changes in living habits

Regarding living habits, most interviewees mentioned changes in high water intensity practices (see Table 20). They mentioned changes towards less water use for example showering less frequently and shorter, washing the dishes consciously, doing the laundry only when it is full. One interviewee mentioned she started to collect rainwater for her garden. Anecdotally, one (American) interviewee mentioned she started to always say a little prayer before flushing the toilet because she came to realize and feel badly about how much water American toilet waste. Practices related to high-energy intensity (e.g. heating, lighting) consumption were less mentioned. One interviewee installed a solar collector on her roof for her shower and another mentioned reducing heating in his house. Finally, a few interviewees also mention enjoying household tasks more and washing up mindfully.

Table 20: Overview of interviewees' changes in living habits

	INTERVIEWEE										
	1	2	3	4	5	6	7	8	9	10	Σ
CHANGES IN LIVING HABITS											
Cleaning mindfully	X		X	X					X		4
Showering less frequently		X		X			X				3
Showering shorter		X			X						2
Dishwashing consciously		X		X	X						3
Doing the laundry when it is full				X		X					2
Collecting rainwater for the garden				X							1
Flushing the toilet consciously					X						1
Telling a prayer for the Earth when flushing the toilet		X									1
Installing a solar panel shower				X	X						2
Heating less the apartment					X						1

7 Discussion

This chapter discusses the conceptual model (section 7.1), the empirical findings (section 7.2), reflections on social practice theory (section 7.3), the research limitations (section 7.4) and gives further research recommendations (section 7.5).

7.1 Discussion of the conceptual model

As any conceptual model, our model is a simplification of reality. In reality, all elements of the model are related and difficult to completely distinguish and the link between mindfulness and consumption is probably not as linear as the model suggests. Furthermore, the model does not take into account the socio-technical context, it shows the link between mindfulness and consumption in a vacuum. In reality however, the socio-technical context will influence this link. In short, reality is much more dynamic and complex. Hence the model has intrinsically a limited predicting force; and is more useful as an explanatory or analytical tool than a predicting tool.

All the linkages of the conceptual model could be recognized in interviewees' narratives to some extent at least. Some linkages were more often present in interviewees' narrative than others. For example, in the general effects of mindfulness, *broader awareness and consciousness, clarity in needs and values, contentment and fulfillment,* and *empathy and compassion* were found in all interviewees. *Reduced automaticity, self-regulation* and *a sense of interconnectedness* were found in most interviewees, though not all. Regarding the consumption related effects of mindfulness, *more conscious consumption choice, care* and *concern for the environment* were found in all interviewees. *Lower consumption desires and aspiration, lower impulsive consumption,* and *reduced intention-behavior* gap were less present. This difference in preponderance of the linkages in the interviews could be however partly due to the design of our interview protocol, which did not ask explicitly about the linkages of the model and the fact that some effects are harder to "detect" or less likely to come up with indirect questioning.

We can also note that the interviewees' interpretation of mindfulness practice differed a bit from the one reflected in the conceptual model. This does not mean that the interviewees or the conceptual model is "wrong", it only points out to the diversity of interpretation of mindfulness. This diversity in interpretation is not necessarily a problem in itself, however it may mean that research on the topic of mindfulness may not always be about the exact same phenomenon.

More design iterations could be done to further develop the improved conceptual model. This could be done for example by cross-validating it with new 'members'. It would be for example interesting to ask practice experts (i.e. mindfulness professionals) for their feedback since our member validation only included scientific experts and practitioners. The model could also be further developed through inductive empirical research. Finally, the model would gain much strength if it could account for social dynamics and include a socio-technical context.

7.2 Discussion of the empirical findings

7.2.1 General changes in lifestyle

In general, the findings support the idea that many lifestyle changes may trickle down from mindfulness practice. Indeed, interviewees' lifestyle changed in many different areas and levels. Interviewees engaged in different sets of activities. Mindfulness practice seemed to have had an influence on which everyday activities are viewed as appropriate and desirable and which aren't. For example, multi-tasking seemed to be connotated as "not acceptable" or incompatible with mindfulness practice as multi-tasking does not allow us to have full attention on what we do and in this way disperses our mind. On the other hand, other activities - like meditation, spiritual activities, taking care of oneself, having more me-time, hurrying less, stopping - seemed to be viewed as part of

a mindful way of living, or as activities that allow the practitioner to go further on the mindfulness journey.

All in all, we could be tempted to state that interviewees shifted towards less resource intensive bundles of practices since changes such as multitasking less, having more spiritual activities, taking more me-time, hurrying less, 'stopping/doing nothing', going out in nature more, etc. are intuitively less resource intensive. However such a statement would be a hasty conclusion as resource use can also be shifted to other space and time or domain. For example, although spiritual activities are at a first glance not associated with high resource intensity, they can be for example through an increased need of traveling to participate in such activities.

Mindfulness seemed also to have an influence on the meaning of certain activities. For example, media consumption was viewed as a source of negativity and violence that can harm our consciousness. It was also viewed as mind-distracting and overloading our brain with information. This reconfiguration of the practice of media consumption may be more sustainable. Indeed, though media consumption may seem a-priori irrelevant for sustainable consumption patterns; looking at it closer it might play a role. Indeed, media not only vehicles many consumerist messages, it also plays an important role in setting social norms, which are currently overall unsustainable (Kasser, 2011). Hence, less exposure to media may have a beneficial effect in terms of sustainability. Yet, we also have to note that this change in media consumption may have been influenced by Thich Nhat Hanh's teachings, which includes "mindful consumption". In this case, consumption is viewed differently then as used in this research; it refers to edible food, sense impressions, volition, and consciousness. Media consumption relates to consumption of sense impressions in this understanding of consumption. It is uncertain whether changes in media consumption would also occur for practitioners in other traditions of mindfulness.

The findings on the general lifestyle changes also suggest that mindfulness interacts with the practice of working as long-term practitioners reported changes in their work e.g. choose to work less or independently. Given that interviewees mentioned they tried to practice mindfulness in everything they do and also referred to trying to practice in their job, it is not astonishing that it had an influence on their professional career. On the other hand, given the consequences that changes in jobs have on our lives, it is remarkable. Moreover, the reconfiguration in working practice that mindfulness brought to interviewees may support more sustainable consumption. Indeed more and more sustainability advocates are promoting reduced working hour policies as income and time pressure are drivers of consumption and on the other hand time affluence can contribute to well-being (Coote et al, 2010; Hayden & Shandra, 2007; Kasser & Brown, 2003; Reisch, 2001; Rosnick & Wesibrot, 2006; Ryan et al, 2010).

Besides, we can note that choosing for more free time rather than a higher income is one of the characteristics of a 'voluntary simple' lifestyle, which is believed to be more sustainable though solid empirical proof is missing (Alexander, 2011). As we explained in paragraph 2.3.3, some scholars believe that mindfulness and voluntary simplicity are linked. This result could therefore support this link. However, a 'voluntary simple' lifestyle entails also other characteristics like frugality, minimalism, material self-sufficiency and self-reliance (Alexander, 2011; Ballantine & Creery, 2010; Elgin, 1993; McDonald et al, 2006), which we did not observe consistently in interviewees. Moreover, it seemed that interviewees did not actively aim for or rearrange their life around material simplicity, as is the case in voluntary simplicity. The material simplicity (if present) in their lifestyle was more a side-effect of a disinterest in materialism. Finally, we should note that making changes in professional careers may only be imaginable for the wealthy and educated.

7.2.2 Changes in food, mobility and living habits

Overall, food related habits seemed to have changed the most among the three lifestyle-domains of food, mobility and living. In contrast to changes in food habits, there were less general patterns in

terms of changes in mobility and living habits. This finding may be explained by several factors. First, we should note that it is not astonishing that there was a difference between these three domains because they function differently (Backhaus et al, 2012; Tukker et al, 2008). That said, it is also likely that mindfulness triggers more 'crisis in routine' in food related practices than in mobility and living practice because there seems to be a clearer association between mindfulness and food habits, 'mindful eating' being a common exercise in mindfulness trainings.

Mindfulness seemed to have influenced interviewees' food habits as they integrated new skills and images associated with food habits. For instance, some changes in food habits seemed to be related to interviewees being more able to notice the effect of food on their body, to recognize what is good for their body, to focus while eating, to notice when they are full, to detach from eating impulses, to recognize and change patterns. Changes were also related to new images, for instance organic food is more respectful, vegetarian diets is more compassionate, drinking alcohol is an unconscious behavior, cooking is an opportunity to practice mindfulness and an enjoyable moment.

The fact that adopting a vegetarian or vegan diet was found across all interviewees suggests that in the eyes of interviewees, eating vegetarian is important to perform mindfulness 'well'. Eating healthy also seemed important as most interviewees reported eating healthier. However a few interviewees also mentioned that there are times where they want to eat something unhealthy like fries for example and that is fine as long as it is eaten without blame and with full attention. Eating organic food also seemed important as interviewees often mentioned it. However, there seems to be some clashes between 'crisis in routines' related to new sayings and doings and the ability to change the routine itself. One interviewee for example mentioned that she cannot afford organic food unfortunately; another interviewee on the other hand mentioned that it is not so expensive when we consider what is behind it.

In general, it seems that the reconfigurations of interviewees' food habits are positive in terms of sustainable consumption. While the environmental impact of changes, like eating organic, slower, etc., is perhaps not straightforward; eating vegetarian has been proven to be one of the biggest leverage points for sustainable consumption (Backhaus et al, 2012; Springer & Duchin, 2014; Tukker et al, 2010). Research shows that if everyone would eat vegetarian, we would have enough food to feed nine billion people (Springer & Duchin, 2014). Further, we can note that there are health benefits in eating less (though sufficiently), slower, organic, fresh produce, etc. (Backhaus et al, 2012; Jordan et al, 2014)

Regarding mobility, mindfulness seemed to have influenced images associated with mobility. For instance, walking was perceived as an opportunity to practice mindfulness, and cycling as a main mean to move around was perceived as doable and positive, driving was perceived as polluting, and going on holiday to retreats was perceived as helping the practice of mindfulness. However, there seemed to be room for negotiation. For instance, if it is winter and there is a lot of snow, or if one is in a wheel chair, or if one needs to go in a remote place that is not well connected to public transportation, it is acceptable to use the car. Mindfulness seemed also to influence certain skills associated with mobility, especially those of paying attention and being aware of the impact of practitioners' behavior. Most changes in daily mobility seemed to have occurred especially out of environmental concern of the interviewees.

With regards to holiday related mobility, all interviewees went to retreats on holidays. This suggests that for this sample going to retreats is important for the practice of mindfulness. It is difficult to estimate whether these changes in holidays have a positive or negative environmental impact since it depends on where, how often and by which transportation means traveling is done. We can note however that there is a risk of increased environmental impact through more flying. This was the case for at least one interviewee who was eager to do retreats in all parts of the world.

The fact that besides different holiday habits, there seems to be no strong patterns in mobility changes may suggest that there are no clear discourses on how to integrate mindfulness in daily mobility practices. This means that in terms of changes towards sustainable mobility patterns, the potential of mindfulness seems rather weak.

Finally, mindfulness seemed to have an influence on the meaning of certain living practices. For instance, cleaning was viewed as an opportunity to practice mindfulness. Mindfulness seems to have also an influence on the skills of certain living practices and especially the skills of awareness and attention. For instance, interviewees seemed rather conscious about water consumption. For example, noticing that showering, dish washing, laundering, and flushing the toilet requires a lot of water. We can note that interviewees seemed to be less aware of energy use in their houses. This is perhaps because Thich Nhat Hanh puts a lot of emphasis on water conservation and protection.

7.2.3 General comments

To the above discussion points, we would like to add a few general comments related to the influence of socio-demographics, the pathways to change, the influence of the social context and the possibility of negative effects of mindfulness in terms of sustainable consumption. First of all, we can note that we did not observe any particular pattern between level of experience in mindfulness or socio-demographics and changes in consumption patterns. However this may be because the sample was rather small. A larger sample would be needed to explain the differences between people.

Second, it seems that mindfulness can lead to sustainable consumption patterns through two pathways: 'deliberate environmentalism' (by stimulating deliberate engagement in pro-environmental practices) and 'accidental environmentalism' (e.g. by decommodifying well-being or by fostering less resources intensive lifestyles). Indeed, in general interviewees engaged deliberately in several pro-environmental practices like reducing pollution and water consumption, eating organic and vegetarian. We can note however that the interviewees also seemed to have varying levels of engagement in pro-environmental practices. For instance some interviewees made more drastic changes than others to their lifestyles to accommodate pro-environmental practices. It seems that a key factor for deliberate engagement in pro-environmental practice, was an 'understanding from the heart', rather than from the head of the need for environmental protection. Indeed those interviewees who reported that seemed to be the most engaged in pro-environmental practices.

This finding also suggests that mindfulness may bring about deep transformative changes and make sustainability intrinsically meaningful to people. This is also in line with what we have personally experienced as well as with what the scientific experts we interviewed have reported; mindfulness helps to reinforce environmental engagement. We believe that 'understanding from the heart' is a particularly interesting phenomenon as it is perhaps crucial for long lasting changes towards sustainable consumption patterns and for bringing sustainability issues higher on the public policy agenda. We should however also note that 'environmental literacy' seemed to play a role in deliberate environmentalism and in an 'understanding from the heart'. Although we have not asked interviewees about their understanding of environmental impacts and sustainability, from their narratives it seemed that they had varying levels of environmental literacy, prior and after starting practicing mindfulness.

In the interviews, we also found a general shift towards less materialistic ways of achieving well-being and towards less resource intensive lifestyles e.g. 'accidental environmentalism'. Interviewees' narratives reflected stepping out of a hedonic treadmill, reflecting on what is needed for a good life and going towards a logic of enough rather than a logic of more. It seems that key factors for decommodifying well-being was 'living in their own way', 'detachment from status', 'feeling contentment and fulfillment', 'looking inwards for happiness', 're-evaluating one's life situation' and 'stronger intrinsic aspirations'. Related to this, a particularly interesting finding was that interviewees

reported being more detached from other people's opinions. This is interesting as it might allow being less susceptible to (unsustainable) social norms and more open to alternative ways of doing and living. For example, one might be less susceptible to the common aspiration of pursuing bigger cars, bigger houses, bigger incomes, etc. or the common norm of showing status through material wealth and accumulation.

Our third comment concerns the importance of the social context. The general changes in lifestyle as well as the changes in food, mobility and living observed in interviewees seemed to be in line with the implicit 'code of conduct' or social norms within Thich Nhat Hanh's community of practice. Eating vegetarian, eating with full attention, savoring, not hurrying, walking mindfully, are all practiced in Thich Nhat Hanh retreats. Also we could sometimes recognize Thich Nhah Hanh's teachings (e.g. the words and metaphor used) in interviewees' narratives. Moreover it is noticeable that all interviewees had similar interpretations and practice of mindfulness. This points out the importance of social interaction and shows how practices are indeed socially defined. It also points out that the potential of mindfulness for sustainable consumption is also perhaps directly related to learning and teaching mindfulness.

Our last general comment is that the results show that negative effects for the environment might occur. As could be observed with one interviewee, the self-compassion gained through mindfulness led him to temporarily eat more meat and drive more as he realized he was forcing himself to be vegan and take public transport. Armstrong (2013) also observed a case where a woman started to shop more for herself as she felt better about herself through the practice of mindfulness. It is interesting that self-compassion, which is generally viewed as a positive feature might have negative effects in terms of environmental impact. On the other hand, our interviewee also indicated that he was again eating less meat and driving less implying that increases in consumption because of self-compassion may be only temporary.

However, the results also point out the possibility of increases in consumption in less obvious ways. For instance mindfulness practice may indirectly increase air traveling, as practitioners want to attend retreats. It could also be that if people buy less, they might want to have for example more fancy - and more resource intensive – holidays. Precisely because they are less obvious potential increases in consumption, it is difficult to estimate how important they may be and to what extend they would cancel possible benefits of mindfulness for sustainable consumption. We believe however that, at least in our research sample, these potential negative effects did not overrule possible benefits and hence mindfulness had all in all positive consequences for sustainable consumption.

7.3 Reflections on social practice theory

In this thesis, we applied social practice theory (SPT) in a new way in consumption studies, namely we applied it to study the interaction of a dispersed practice (e.g. mindfulness) with integrative practices relevant for sustainable consumption (e.g. food, mobility and living practices). The use of social practice theory was relevant to understand the complexity of changing consumption patterns. It also pushed us to view behavior change as emergent from practices rather than for example attitudes or values. However the lack of guidelines to apply social practice theory (Kuijer, 2015; Sahakian, 2014) made its integration in this research difficult. During the research, it occurred to us that our research approach was perhaps not well suited to social practice theory. Our research explored what kind of changes in consumption patterns were associated with mindfulness practice and hence adopted a broad focus, namely on general lifestyle changes as well as changes in food, mobility and living. This broad exploration did not allow us to go in depth into the dynamics of changes of each practice, which would have been useful to interpret the result more in depth with a social practice theory lens.

The difficulty to apply social practice theory was accentuated by the fact that so far, scholars in the sustainability field have only used the theory for studying *integrative* practices relevant for sustainable consumption. Hence no examples existed on the application of social practice theory for studying *dispersed* practices. That said, we recommend researchers using social practice theory to include *dispersed* practices in their study as *dispersed* practices have the advantage of holding a wider potential bandwidth of change as they are per definition connected to a multitude of (integrative) practices. Changes in specific practices are often confronted with limited spillover, i.e. transfer of environmentally friendly configurations to other practices (Thogersen & Olander, 2003). Hence it would be interesting to make a comparative study of the potential of interventions at the level of dispersed practices compare to integrative practice for transitions towards sustainable consumption patterns. This would allow better understanding of the strengths and weaknesses of each type of intervention and how they can complement each other. To do so, social practice theory needs further development on the interaction of dispersed practice with integrative practices.

7.4 Research limitations

We would like to discuss here some general issues and limitations of our study. First there are some limitations related to the research sample. For instance, we can note that all interviewees experienced changes in lifestyles related to their mindfulness practice. But this is possibly due to a self-selection problem of the sample. Indeed, it could be that amongst the potential interviewees approached, only those who experienced changes in lifestyle answered the call for participation. However we believe this possibility to be small as mindfulness typically engenders changes in people's lives.

Another possible influence on the results is that all interviewees seemed rather enthusiastic and committed mindfulness practitioners - otherwise they would not have voluntarily participated in this research in the first place. This is not necessarily representative of all mindfulness practitioners. Indeed, people can also be skeptical about mindfulness practice, abandon the practice or be less committed in any other way. Yet the potential of mindfulness for sustainable consumption is probably directly dependent on the commitment of practitioners.

The fact that the sample is rather highly educated and spiritual may also have influenced the findings. Indeed, research shows that education and spirituality are correlated with sustainable behavior (e.g. Armstrong, 2007; Csutora & Zsoka; 2014; Hedlund-de Witt, 2011). Related to this is the fact that Thich Nhat Hanh's mindfulness tradition encompasses Buddhist teachings. Yet Buddhist ethics has converging points with environmental ethics and philosophy (Daniels, 2010). For instance, the Buddhist belief of interbeing and the principles of non-harm, compassion and loving kindness are all grounds for environmental protection (Daniels, 2010). Moreover Buddhism - just as most, if not all, spiritual traditions - calls for happiness coming from within and encourages spiritual rather than material wealth and a desireless state, which are all elements convergent to the idea of "living better with less" (Daniels, 2010).

Thich Nhat Hanh's teachings also include reflections on the Earth and the protection of the environment. He wrote for example a book, *The world we have; A Buddhist approach to peace and ecology,* which is explicitly promoting the need for environmental action. This emphasis on the value of the environment might be absent in other mindfulness traditions and is likely to influence the changes in consumption patterns related to mindfulness practice.

Next to limitations related to the research sample, there are also limitations related to the cross-sectional explorative research approach and the self-report measurement method. The results are limited by possible biases inherent to the self-reported changes, such as social desirability, self-evaluation and forgetfulness (Bryman, 2012). It is difficult to assess how present these possible biases were.

In addition, due to this research's explorative and qualitative character, the data analysis and interpretation are susceptible to subjectivity. To minimize subjectivity, we have attempted to stay as close as possible to the data, to be transparent with our methodology, and to ask for peer review on our analysis and interpretation. However as in any qualitative research, there is an irreducible amount of subjectivity. The qualitative nature of the research also limits the possibility to generalize the results beyond the research sample.

Finally, the cross sectional nature of this research does not allow concluding on the nature of the relationship between mindfulness and sustainable consumption, nor on the possible existence of third variables. The fact that interviewees, when asked about the changes (if any) that they experienced in everyday life practices, often made statements such as "this is definitely due to mindfulness" points out a possible causal relationship. However there could still be a third variable for example shared characteristics (e.g. worldviews or values) within the research sample. Experimental research is needed to assess causality.

7.5 Recommendations for further research

Since the research sample came from a specific Buddhist tradition of mindfulness, a remaining question is what effect (if any) would mindfulness based on other Buddhist traditions or even secular mindfulness practices have on consumption patterns? As discussed in paragraph 2.3.1 secular mindfulness is likely to have a different influence on consumption patterns than when an explicit ethical context to mindfulness is incorporated. Hence, it would be particularly interesting to do a similar research but choose a research sample from secular mindfulness practice such as Mindfulness Based Stress Reduction or Google's Search Inside Yourself mindfulness program. It is also more generally important to conduct research with different mindfulness tradition or groups given the existing heterogeneity in the interpretation and practice of mindfulness and the fact that different approaches to mindfulness lead to different effects (Chiesa & Malinowski, 2012; Dorjee, 2010; Thompson & Waltz, 2008).

Another interesting follow-up of this qualitative and explorative research would be a quantitative research assessing the impact of the changes in consumption patterns. This would provide a better estimation of the significance of these changes in terms of sustainability and thus the potential of mindfulness as an approach to sustainable consumption. It would be particularly interesting to know the impact of the general lifestyle changes such as less mind distracting activities, less media consumption, slower lifestyles, since the influence of such changes is less well known than for example changes in diets or mobility patterns.

Next and supposing that mindfulness can indeed contribute to sustainable consumption; it would be interesting to study what influences the commitment of practitioners. How easy is it to sustain the practice over time? What role does training play? What role do teachers play? What role does the community of practice play? Indeed, the sustainability 'benefits' of mindfulness probably depend on the commitment to the practice. Related to this topic, further research on how the practice recruits would be useful as mindfulness can only play a role for sustainable consumption if a critical mass practices mindfulness.

It would also be interesting to do a study considering social dynamics and the social context of mindfulness practitioners. Indeed, this is likely to have an influence on the potential changes in consumption patterns related to the practice of both secular and non-secular mindfulness. For example, mindfulness practitioners who live and work in a highly materialist culture are likely to experience less sustainable changes than practitioners surrounded by an environment and a community with different values. On the other hand, it is also possible that mindfulness practitioners move social circles as they practice.

It would also be interesting to research the effect of mindfulness in terms of social sustainability. Indeed, all interviewees mentioned that mindfulness had an impact on their social relationships for the better and many of them were engaged in volunteering work or mentioned they try to be "at service". Literature also shows that mindfulness has social benefits (e.g. Brown & Ryan, 2003; Tipsord, 2009). This points out that practicing mindfulness may have potential value for social cohesion and community building. These in turn are relevant for sustainability not only because it helps to address social issues but also because according to scholars change will and can only happen at the collective level (vs. individual level) (Jackson, 2005; Uyterlinde et al, 2012). Hence it would be interesting to study further the potential of mindfulness for building a more just, compassionate, caring and resilient society.

More generally, more research on the community of mindfulness practitioners is worthwhile investigating as mindfulness is definitely a growing trend and perhaps could even qualify as a social movement. Transition studies have shown that social movements and societal trends are relevant to take into account when defining future scenarios and studying the mainstreaming of sustainable alternative practices (Uyterlinde et al, 2012). It would be also interesting to study the evolution of mindfulness practice and its consequence on society. What is the effect of the popularization of mindfulness and how could this trend be used in favor of sustainability? On the other hand, it would also be interesting to research mindfulness skeptics or defectors (e.g. individuals who abandon the practice) to better understand the limitations of the practice as an approach to transition towards sustainable consumption.

8 Conclusion

This thesis was set out to explore the links between mindfulness and consumption, and specifically to gain clarity on how mindfulness impacts household consumption patterns. This to provide insights into whether mindfulness could be a constructive approach to sustainable consumption that would increase personal well-being and reduce environmental impact. Since substantial evidence exists on the well-being benefits of mindfulness, in this research we have taken this as a given and have rather focused on the potential ecological benefits of mindfulness. In section 8.1, we answer the research questions before giving more general conclusions (section 8.2).

8.1 Answering the research questions

The central question of this thesis is: *How can mindfulness practice contribute to sustainable household consumption patterns within Western countries?* Since little empirical research exists on this topic, we adopted an explorative qualitative research approach to answer this question and focused on describing and understanding the contribution of mindfulness to sustainable consumption rather than quantifying it. In the first part, we developed a conceptual model on the relationship between mindfulness and consumption patterns; in this process we interviewed a set of scientific experts and a set of practitioners to improve our preliminary model, which was based on literature. In a second part, we interviewed mindfulness practitioners on the effect (if any) mindfulness had in general on their everyday life practices and in particular on their eating, mobility and living habits. This resulted in rich data from which on one hand we extracted factual changes in consumptions patterns and on the other hand tested our conceptual model.

8.1.1 How does mindfulness and household consumption patterns relate according to literature, experts and practitioners?

According to literature, scientific experts as well as practitioners, a link between consumption patterns and mindfulness exist. This link is multifaceted and not straightforward. A number of interrelated direct and indirect effects may influence consumption patterns. The direct effects include broader awareness and consciousness, reduced automaticity, better self-regulation, greater sense of interconnectedness, greater clarity of needs and values, greater contentment and fulfillment, and greater empathy and compassion. The indirect effects include more conscious consumption choices, greater care and concern for the environment, lower consumption desires and aspirations, lower impulsive consumption and reduced intention-behavior gap.

8.1.2 What effect (if any) does mindfulness have on practitioners' consumption patterns?

Reported changes of mindfulness practitioners in Thich Nhat Hanh's tradition suggests that mindfulness changes consumption patterns in different ways. Interviewees' general lifestyle shifted towards sets of activities that can be viewed as complementary to a mindful way of living, such as spiritual activities, meditation, me-time, and self-care activities. They also shifted away from sets of activities that can be viewed as hindering a mindful way of living, like hurrying, cramming one's agenda, multi-tasking, and consuming media unselectively. In terms of eating, mobility and living habits, a general pattern observed is that mindfulness triggered more changes in eating habits than in mobility and living habits. The changes in eating habits seem related to the integration of both new meanings - related to for example vegetarian, healthy, organic food, the activity of cooking - and new skills - like being aware of the impact of food on one's body, eating slower, chewing consciously, savoring more, eating less on cravings. Overall, the changes in consumption patterns and especially in eating habits seem to be positive in terms of sustainability, though signs of possible negative influence were also found.

8.2 General conclusion

It seems that mindfulness may contribute to sustainable household consumption patterns within

Western countries through two pathways; “deliberate environmentalism”, i.e. stimulating deliberate engagement in pro-environmental practices, and ‘accidental environmentalism’, i.e. decommodifying well-being and/or fostering less resources intensive lifestyles. However mindfulness may also negatively influence the environmental impact of consumption patterns. For instance, consumption may increase as mindfulness practitioners become more self-compassionate and decide to spend more on themselves or allow themselves to consume more. Another scenario of possible increase in consumption is one where lifestyle changes related to mindfulness practice shifts consumption to other domains.

Hence, mindfulness may perhaps best be thought of a possible catalyst for sustainable consumption patterns. This means that we must ensure that the reaction of the catalyst is what we want, e.g. avoid and manage potential negative effects. Another implication in terms of sustainability is that we should find a way to produce more of the catalyzer, i.e. recruit and retain a critical mass of mindfulness practitioners, and make the catalyzer as efficient as possible, i.e. enhance the link between mindfulness and sustainable consumption.

To conclude, this thesis adds to previous research by providing empirical evidences and by providing insights into why and how mindfulness may contribute to sustainable consumption patterns. It also provides further support of the potential of mindfulness as an approach to the double dividend, e.g to increase well-being while decreasing environmental impact. However we would like to remind that whereas mindfulness increases well-being, there is no guarantee of pleasure or success. It is not per se a bliss state; it can be painful and unpleasant. So promoting mindfulness does not necessarily mean that it is an all-joyful, happy go lucky approach to sustainable consumption. Moreover for mindfulness to release its effects, it requires commitment and effort. That is not to say that it is not worth trying. But we need to have realistic expectations.

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Appendix

A. Research design

Figure A1 shows the main research design choices explored and chosen. Table A1 gives brief justification on the research design chosen.

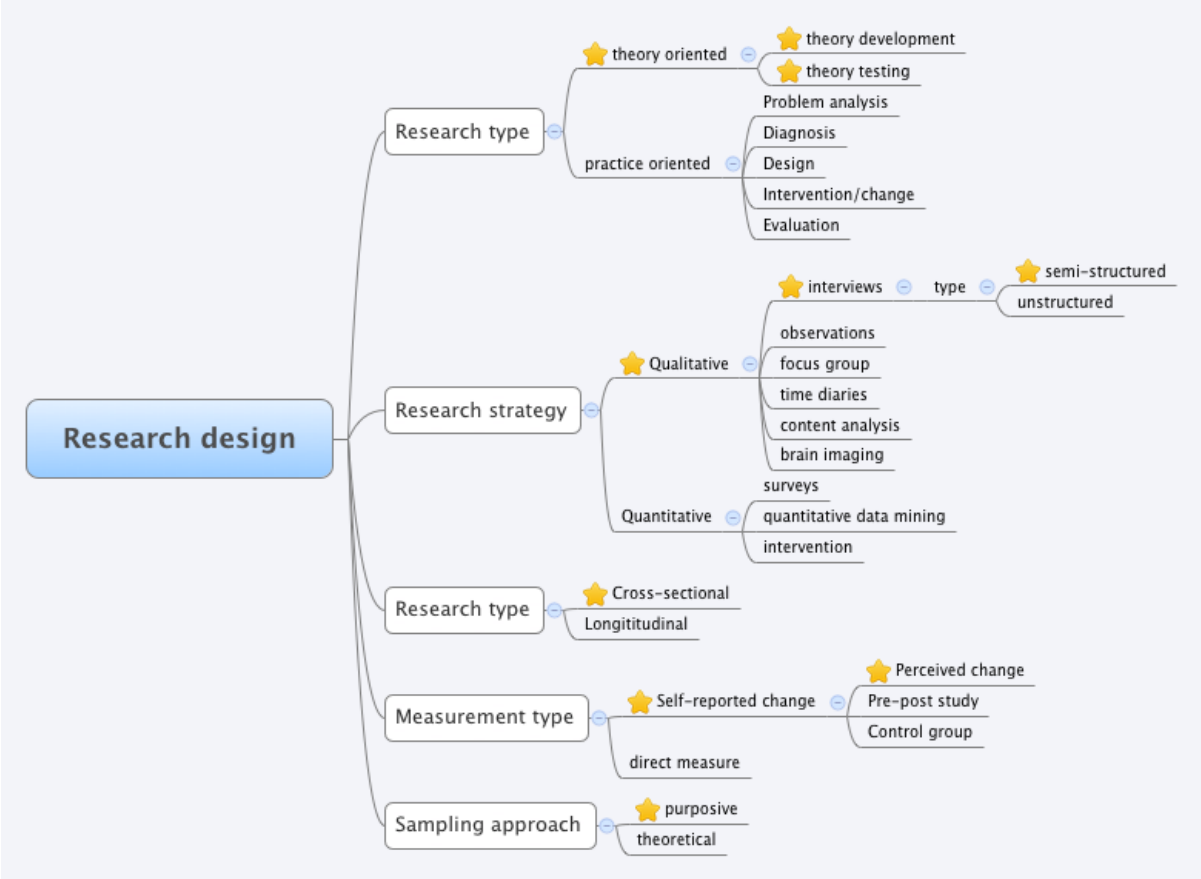


Figure A1: Research design tree based on our own research thinking process. The stars indicate the choices taken

Table A1: Main research design choices

	Main research design choices	**Justifications**
Research strategy	Qualitative (vs. quantitative or mixed methods)	More appropriate for explorative research and collecting thick data
Research method	Interviews	Resources (e.g. incl. time, skills and money) available to researcher, feasibility, efficiency
Interview type	Semi-structured (vs. unstructured)	Ability to have flexibility in procedure and to compare results
Type of research	Cross-sectional research (vs. longitudinal)	Research time constraints, feasibility

Type of measurement	Self-report measure (vs. direct measure)	Research time constraints, feasibility
Measurement method	Retrospective perception of change method (vs. pre/post study of change or control group method)	Research time constraints, feasibility
Sampling approach	Purposive (vs. theoretical)	Research time constraints, feasibility

B. Expert validation

Potential scientific expert candidates

Table B1: Potential member validation candidates

	Name	Professional address	Relevant work
1	**Torgeir Ericson** (torgeirericson@hotmail.com) **Bjorn Gunaketu Kjonstad** (gunaketu@igo.as) **Anders Barstad** (aba@sbb.no)	Center for international climate and environmental research (CICERO), Oslo, Norway iGO, Oslo, Norway Research department, statistics Norway, Oslo, Norway	Ericson, T., Kjønstad, B. G., & Barstad, A. (2014). Mindfulness and sustainability. *Ecological Economics*, *104*, 73–79
2	**Tim Kasser** (tkasser@knox.edu) **Kirk Warren Brown** (kirk@psych.rochester.edu)	Department of Psychology, Knox College, Galesburg, United States Department of Clinical and Social Sciences in Psychology, University of Rochester, United States	Brown, K. W., & Kasser, T. (2005). Are Psychological and Ecological Well-being Compatible? The Role of Values, Mindfulness, and Lifestyle. *Social Indicators Research*, *74*(2), 349–368
3	**Elise L. Amel** (elamel@stthomas.edu) **Christie M. Manning** (bascott@stthomas.edu) **Britain A. Scott**	Department of Psychology, University of St. Thomas, St. Paul, Minnesota, United Stated Department of Environmental Studies, Macalester College, United States Department of Psychology, University of St. Thomas, St. Paul, Minnesota, United States	Amel, E. L., Manning, C. M., & Scott, B. (2009). Mindfulness and Sustainable Behavior: Pondering Attention and Awareness as Means for Increasing Green Behavior. *Ecopsychology*, *1*(1), 14–25
4	**Jeffrey Jacob** (deceased)	Graduate division of educational research, University of Calgary, Canada Department of Sociology, University of Western	Jacob, J., Jovic, E., & Brinkerhoff, M. B. (2009). Personal and Planetary Well-being: Mindfulness Meditation, Pro-environmental Behavior and Personal Quality of Life in a Survey from the

	Emily Jovic **Merlin B. Brinkerhoff**	Ontario, London, Canada Department of Sociology, University of Calgary, Calgary, Canada	Social Justice and Ecological Sustainability Movement. *Social Indicators Research*, *93*(2), 275–294.
5	**Erika L. Rosenberg** (Erika@erikarosenberg.com)	Centre for mind and brain, University of California, Davis, United States	Rosenberg, E. (2004). Mindfulness and consumerism. In T. Kasser & A. D. Kanner (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 107–125). Washington: American Psychological Association.
6	**Christine Polzin** (Christine.polzin@ufz.de)	Helmholtz Centre for Environmental Research, Leipzig, Germany	Forthcoming. PhD thesis on Environmental Behavior Change Policy and Mindfulness
7	**Alison Armstrong** (alison@presentminds.org)	Centre for Environmental Strategy, University of Surrey, Guildford, United Kingdom	Armstrong, A. (2012). Mindfulness and consumerism: A social psychological investigation. PhD thesis, University of Surrey

Template email to scientific experts

Subject: Request for peer-validation of Mindfulness & Sustainable consumption model

Dear, Torgeir Ericson, Bjørn Gunaketu Kjønstad and Anders Barstad,

In the context of my Master thesis, I am researching the effect of mindfulness on lower levels of household consumption. My research is supervised by Dr. Jaco Quist and Drs. Caroline Wehrmann and will serve as input to the EU "Green Lifestyles, Alternative Models and Upscaling Regional Sustainability" (Glamurs) project in which Dr. Quist is involved.

I am contacting you as I am looking for member validation of my preliminary conceptual model and you seem to be the perfect experts for this. I loved your article “Mindfulness & Sustainability” in the *Ecological Economics* (and am secretly very happy that such a topic got its way into the Ecological Economics!)

In my preliminary conceptual model (see attachment), I have defined a set of propositions on the nature of the relationship between mindfulness and lower level of household consumption. In order to refine and peer-validate my model, I would like to interview a few experts (scientists and mindfulness practitioners).

Would it be possible to interview one of you and discuss my model via Skype or phone? If yes, please let me know what time and date would suit you and how I can best contact you

If you would like more information about this research, please feel free to ask.

I look forward to your response.

Kind regards,

Melanie Studer

MSc student Industrial Ecology & Science Communication
Technical University of Delft & Leiden University, Netherlands
Skype: mstuder 4
Phone: +31685037019

Member validation interview protocol

Interview introduction

- Thank you
  - Thank you for accepting this interview
- Introduction of myself and my research
  - Let me introduce my research and myself briefly. I am a Master student in the Netherlands at the Delft University of Technology. I started to practice mindfulness a year ago, after my father passed away. Through the practice, I experienced many changes in my life and lifestyle. At the same time as I was supposed to start working on my thesis, I was reading about well-being, consumption, and lifestyles because I was always interested about this topic. I had this intuition that there was a connection and also found some literature showing that there might be one. So I became curious and wanted to investigate the issue further.
  - My research objective is to explore the potential role of mindfulness practice as a pathway for reducing levels of household consumption by studying the consumption patterns of mindfulness practitioners.
  - My main research question is: How can mindfulness contribute to a transition to reduced levels of household consumption?
- Purpose of the interview
  - Currently, I am in the process of developing a conceptual model with a set of propositions on the nature of the relationship between mindfulness and reduced levels of household consumption. This purpose of this interview is to discuss your opinion, observation and experience on how mindfulness relates to consumption patterns.
  - Eventually the aim is to refine my model and bridge any gap between theory and practice
- Type of questions
  - First, I will ask your personal experience with mindfulness as well as your thoughts and observations of the potential relationship between mindfulness and consumption.
  - Then, I will also ask you a set of question on the model I have drawn
- How answers will be used
  - Your answers will serve to refine my model and bridge the gap between theory and practice.
- Rights and protection of the interviewee
  - If I ask something that you would prefer not to answer, feel free to not answer, and also feel free to stop the interview at any time
  - Feel free also to interrupt me and ask for clarification if needed
- Interview duration
  - The interview will take about 1 hour
- Recording & citation
  - Can I cite your name in my report or do you prefer to be anonymous?

    - Do you mind if I record our conversation?
- Questions
    - Do you have any questions so far? Is everything clear?

Background

- Where did your interest in this topic come from? #
- How was your work received? #
- Can you briefly describe what you do professionally and what is your experience with mindfulness?

Personal experience, observations and reflections on the relationship between mindfulness & consumption

- How did mindfulness affect your lifestyle and consumption patterns?
- Do you think mindfulness has an effect on consumption patterns? If yes, how? What do you think could explain the link? Can you give an example? What is your observation? *
- Do you think the effect of mindfulness on consumption would be the same depending on whether mindfulness is interpreted in a secular way or not?

Validity of the preliminary model

- What did you think of the model in general? #
- After showing the practitioners the preliminary conceptual model. What do you think of the model in general? *
- Do you recognize the different elements in it? #
- Do you recognize the different elements in the model in you or in others? Can you think of example when you observed these elements in you or in others? *
- What do you think of the different labels ("direct effect of mindfulness", "motivation to change", "ability to change"?
- Do you think some elements are more important than others?
- Would you cluster (or break down) some elements? If so how would you do that?
- Can you think of something that is missing in the model?
- Are there any other changes you would do to improve the model?

Interview closing

- Do you have any other recommendations, suggestions or comments?
- Would you be interested in a summary of the research findings?
- Is there anything that you would like to add to this interview?

specific question for scientific expert

* specific question for practice expert

C. Interviews

Template email to potential research participants

Dear Narcis Family,

I am a Master student at the Technical University of Delft. In the context of my Master thesis research, I am exploring the role mindfulness may play for sustainability. I am currently looking to interview people who (try to) practice mindfulness in their everyday life. The purpose of my interviews is to gain insight into the influence (if any) of mindfulness practice on daily practices such as eating, traveling, housekeeping, showering, etc. The interview would last about one hour over Skype or phone.

If you are interested or willing to be interviewed, I would be grateful if you could let me know the date and time that would suit you best and how I can contact you. (I have a fairly flexible schedule at the moment).

I thank you in advance for your time.

A lotus to you,

Melanie Studer

Interview protocol

Introduction (7 minutes)

- Thank you
  - Thank you for accepting this interview
- Introduction of myself and my research
  - Let me introduce my research and myself briefly. I am a Master student in the Netherlands at the Delft University of Technology. I started to practice mindfulness a year ago, after my father passed away. Through the practice, I experienced many changes in my life and lifestyle. At the same time as I was supposed to start working on my thesis, I was reading about well-being, consumption, and lifestyles because I was always interested about this topic. I had this intuition that there was a connection and also found some literature showing that there might be one. So I became curious and wanted to investigate the issue further.
- Purpose of this interview
  - The purpose of this interview is to discuss about your experience of how mindfulness practice your lifestyle and material consumption patterns. I mean material consumption in a broad way, not only as what you buy but what you use for instance.
- Type of questions
  - I will be asking you mainly open ended questions
  - First I will ask you some questions about your interpretation and practice of mindfulness
  - Then I will ask you many questions about the influence of mindfulness on your daily life, both generally and more specifically.
- How I will used the answers
  - I will use your answers to see what kind of similarities and differences exist between practitioners and to gain insight into what kind of lifestyle changes we can expect if

more people would practice mindfulness and what role mindfulness can play for sustainability

- Rights and protection of the interviewee
  - You will be anonymous in my report and your answers will be treated in confidence
  - As this is about your experience, there are no right or wrong answers. Everything is valid.
  - If I ask something that you would prefer not to answer, feel free to not answer, and also feel free to stop the interview at any time
  - Feel free also to interrupt me and ask for clarification if needed
- Duration
  - The interview will take about 1 hour
- Recording
  - Do you mind if I record our discussion?
- Questions
  - Do you have any questions so far? Is everything clear?

Interpretation and practice of mindfulness (10 minutes)

First I would like to start with questions about interpretation and practice of mindfulness.

1. Mindfulness is interpreted in many different ways. Can you briefly explain what mindfulness means to you?
2. Mindfulness is practiced in different ways. How do you practice mindfulness in your daily life?
3. People have different intentions behind their practice of mindfulness. What is yours? Why do you practice mindfulness?
4. What is the most rewarding aspect for you to practice mindfulness?

General influence of mindfulness on daily life (15 minutes)

I would like to move on to the effect of mindfulness on your daily life

5. How we spend our time, the daily activities we do, defines much of our lifestyle. What kind of influence (if any) did mindfulness have on how you spend time?
6. Did mindfulness have other general influences on your lifestyle?

Influence of mindfulness practice on other practices (15 minutes)

In my thesis, I am especially interested in three lifestyles domains, namely food, mobility and living. So I would like to ask you about these domains of life.

7. What kind of effects (if any) did mindfulness have on your food related habits?
8. What kind of effects (if any) did mindfulness have on your mobility habits?
9. What kind of effects (if any) did mindfulness have on your living habits?

Influence of mindfulness on sources of happiness and environmental consciousness (8 minutes)

I would like to move on now to two broader questions about the sources of your happiness and the environment.

10. Did mindfulness influence what makes you happy?
11. How conscious are your of the environmental (and social) impact of your lifestyle?
12. Did/does mindfulness have an effect on this consciousness?

Interview closing (5 minutes)

I have a few last questions

13. Could you give me a few demographic details to give me some background information about you? [ask questions which we do not know yet the answer – see below]
14. Do you mind if I use some of your quotes (anonymously) in my thesis report?
15. Can I contact you in case of follow-up or clarification question?
16. Would you like a summary of the research findings?
17. Is there anything else you would like to add to this interview?

Thank you so much for your time

Socio-demographic form

1. Years of mindfulness practice
2. Age
3. Country
4. Nationality
5. Gender
6. Marital status
7. Living context
8. Living with
9. Education level
10. Working status
11. Occupation
12. Spiritual aspiration

D. Coding scheme

Socio-demographic characteristics

Table D1: Overview of the research sample's socio-demographic characteristics

BACKGROUND	INTERVIEWEES									
	1	2	3	4	5	6	7	8	9	10
Years of mindfulness practice	2	3	3	15	8	2	34	30	25	19
Age	24	28	22	66	41	31	66	50	61	50
Country A= Netherlands, B=USA, C=Germany, D= Ireland,	A	B	C	D	C	A	A	A	A	A
Nationality A=Dutch, B=American, C=German, D=Irish, E=French, F=Vietnamese	A	B	C	D	C	A	AB	E	AF	A
Gender A=Female, B=Male	A	A	B	A	B	A	A	B	A	B
Marital status A=Single, B=Married/in partnership, C= Divorced	A	A	A	C	B	A	B	B	B	B
Living context A=Urban, B=Rural	A	A	A	B	A	A	B	A	A	A
Living with A=Alone, B=Parents, C=Housemates, D=Partner, E=Partner and kid	A	B	C	A	D	A	D	E	D	E
Education level A= Mandatory school, B=High school, C=Bachelor, D=Master, E=Doctorate	B	C	C	D	E	A	D	D	C	D
Working status A=Employed full-time, B= Employed part-time, C=Self-employed, D=Student, E=Retired	D	A	D	E	A	A	E	C	B	C
Occupation A=Reiki student, B= Art dealer, C=Law student, D=Retired neuroscientists, E=Cardiologist, F=Therapist, G=Retired social worker, H=Therapist, I=Yoga teacher, J=Criminal lawyer	A	B	C	D	E	F	G	H	I	J
Spiritual aspiration A=Nothing specific, B="Partly Buddhist", C=Buddhist	A	B	A	C	B	B	C	C	B	A

Interpretation and practice of mindfulness

Table D2: Overview of the research sample's interpretation and practice of mindfulness

MEANING OF MINDFULNESS
Being in the present moment 'present moment', 'in the moment', 'here & now'
Awareness 'awareness', 'seeing what is happening', 'looking deeply'
Attention 'focus', ' attention', 'concentrating', 'stop distracting my mind'
Acceptance 'accepting what is, 'staying with difficult emotions, 'being with whatever is, 'allowing discomfort to be'
Way of life 'way of being', 'way of life', 'way of becoming free'
Mind training 'knowing how the mind works, 'training the mind', 'getting out usual thinking routine'
Spiritual 'spiritual'
Breath as an anchor 'it's coming back to my breathing', 'it's starts with coming back to your breath', It's about breathing also'
MINDFULNESS PRACTICE
In daily life (including jobs) 'in all aspects of my life', 'with everything I do', 'as much as I can', 'throughout the day', 'in my everyday activities', 'in daily life', 'in my job', 'at work', 'with my daughter/son'
A journey 'I try', I do not always succeed', 'there are moment I completely forget [about being mindful]', 'it's not always working', 'it's a path and not a straightforward one, it's bumpy sometimes', 'it's a journey with ups and downs', 'it's a commitment', 'it's becoming more and more natural ', 'it gets easier'
System of reminders or routine 'I schedule moments in my day to do nothing and come back to myself', 'when the phone or the doorbell rings I do not get it straight away, I first return to my breath', 'I sometimes divide an hour in four and I use a timer, and I try to be very mindful for 15 minutes and when the timer rings, I start again'
Daily meditation 'sitting meditation', 'walking meditation', 'working meditation'
INTENTION BEHIND PRACTICE
Stillness 'stillness', 'calmness', 'less haste'
Coping 'staying with difficult emotions', 'coping with chronic pain'
Connectedness with self 'being more myself', 'being more at ease with myself', 'being more connected with myself
Connectedness with others 'more connection'
Compassion 'compassion', 'helping others', 'becoming a better person', 'bringing good'
Happiness 'happiness'
Peace of mind 'peace'
Concentration 'concentration', 'clarity'
Freedom 'freedom'
Insight 'live life deeper', 'awaken', 'grow and learn'
REWARDS OF PRACTICE
Stillness 'stillness', 'calmness, 'stability'
Coping 'less pain', 'healing', 'less peaks in emotions', 'sleep better'
Connectedness with self 'being more myself', 'being more at ease with myself', 'being more connected with myself'
Connectedness with others 'connection with others', 'deeper connection', 'being available and present for others'

Compassion 'compassion'
Happiness 'happiness'
Peace of mind 'peace'
Concentration 'clarity', 'concentration', 'remember better'
Freedom 'freedom'
Insight 'experiencing life more', 'being more connected to life'

General correlated process with mindfulness

Table D3: Overview of the codes used for the general correlate process with mindfulness

BROADER AWARENESS AND CONSCIOUSNESS
Self-awareness Being aware of 'what I am doing', 'what I am saying', 'the speech I am using', 'what my heart is saying', 'unconscious fears', 'where and how I am and what I do ', 'what my place is in society, the influences of my behavior on myself'
Social and environmental awareness Being more aware of 'the energies around me', **'**how what I say is going to affect another person', 'what is going on around me', 'the environment', 'nature', 'water',
Seeing clearly or differently **'**It is like if my glasses are always clean (…)I see more clearly', 'it opened my eyes', 'I am looking differently to things', 'You see thing so clearly', ' you shed light on things', 'it's like if you have a flashlight'
No wrong perceptions 'I see very clearly so there is the absence of unhappiness because most unhappiness, we create it, we have wrong perceptions, we do not understand others, we are victims. As we see things clearly, we are free, we are not puppet'
REDUCED AUTOMATICITY, SELF REGULATION
Recognizing and changing habits 'becoming conscious of my habit', 'changing bad habits', 'breaking habits', 'being more able to choose my reaction', 'You would have told me 10 years ago that I would hardly drink wine anymore, I would have laughed at you. But that's what happened. I realized that drinking wine was just a habit'
Behavioral **'**Years before, I would go out and think 'oh I want to eat that chocolate bar' and I ate that and I only tasted it with my tongue. But now I see the pattern of greed behind that and the need for intense taste'
Cognitive **'**getting away from a state of suffering of automatic patterns running in my mind more to being able to decide which kind of pattern is running at the moment', 'getting out of my usual thinking routine', 'being free of my usual traps of thinking and feeling'
Emotional 'being free of my usual traps of thinking and feeling'
SENSE OF INTERCONNECTEDNESS
Feeling interconnectedness 'feeling connected with the world', 'feeling connected with the planet', 'feeling connected with the environment', 'feeling connected with every single being', 'feeling everything is one', 'feeling everything is interrelated', 'feeling we inter-are'
Sense of protection for human being 'I am conscious everything is one; that if I hurt someone, I also hurt myself and I also hurt the world'
Sense of protection for the environment **'**I feel more connected with the planet. I feel so grateful for the planet we live on', 'I feel more connected with the environment and that's why I want to save it', 'I have a deeper understanding and appreciation for life itself and the connection with everything'
Increased happiness **'**If you know this [that we are interrelated] you can be happier'
CLARITY OF NEEDS AND VALUES
Self-understanding 'understanding myself better', 'knowing myself better', 'feeling I know who I am', 'being more myself', 'becoming more myself', 'knowing my real needs'
Self-leadership 'knowing what I want to do in life', 'knowing how I want to live', 'being clearer with what I want and do not want in life',

'The old me was not so in touch with life. He was more in touch with career, respect from colleagues, wanting to be seen, things like that. With mindfulness, it opened my eyes, I saw there is so much more than career, money and gaining respect from others. (…) Mindfulness changed how I think about life and where I want to go'
Empowerment 'I feel like I know who I am now. And I understand my emotions now and I understand what suffering is, what sorrow is and that I have choice to live the life that I choose. It is empowering. I feel like a real person'
Living my own way 'feeling I have the choice to live the life I want', 'living my own way of life', 'being in harmony with myself ' 'not caring about what other people think', 'not attached to other people's opinion', 'not scared anymore of what people may think', 'free from the judgment of others'
Detachment from status **'**not needing to be important anymore', 'there is much more than gaining respect from others'
CONTENTMENT, FULFILLMENT
Feeling contentment, fulfillment 'feeling content', 'feeling whole', 'feeling satisfied', 'feeling rich', 'feeling fulfilled', 'feeling happiness inside myself'
Looking inwards for happiness 'finding happiness inside', 'having an inner source of happiness', 'having a source of contentment or something', 'not needing external things to be happy', 'being happy in myself', 'being less dependent on the outside', 'needing less from the outside', 'being detached from specific aims', 'being detached from what I would like to have'
Reevaluation of one's life situation 'I can be happy with what I already have', 'I realize I have everything I need to live a happy life', 'I appreciate the things I already have', 'I feel I already have so much', I realize how privileged I am'
Simpler source of contentment or happiness 'Less makes me happy', 'what makes me happy got more simple', 'I am more able to enjoy simple moments, events in life', 'I need less than I previously needed to be happy'
EMPATHY AND COMPASSION
Empathy and compassion for others 'helping people', 'being available and present for others' , 'giving my attention, my time to others', 'trying to relieve suffering where possible', 'trying to practice listening deeply and with compassion', 'using meditation to send some energy to someone who needs it', 'engaging much more with people', 'when I investigate my patients, every time I listen with my stethoscope to their hearts, I try to listen to not my breathing but their breathing and be in the moment with that', 'I am very aware of needing time to nourish myself so that I can be fresh and available for others', 'part of this process was also healing with my father', 'I look at where things, is it ok? is it respectful? is it a respectful way how people are getting it? do I pay a respectful price? etc. (…) It's important because people put a lot of work into a product and then well it is just respect for it', 'I am more mindful of my love for my family and theirs for me. And therefore I want to experience their company more'
Compassion for nature 'we should mourn about the loss of the beauty of the Earth, because there is a lot of pain and suffering', 'we need to take care of the Earth', 'respect every living being also the animals and the trees', 'respect life in every single form', 'I treat the soil with respect because it is the home of millions of other creatures that I do not see', 'it breaks my heart when I flush the toilet but at least every time I make an offering to the Earth because I thank the Earth that I am able to do that', 'When I was younger, I did not learn to throw things in a garbage can. My parents just threw things outside from the car for example. I was raised like that. So I never thought about that. But now I am thinking "now it's laying on the Earth and what will it do if it stays there so long', 'I want to make sure that the food I eat is good for the survival of the planet', 'taking time to realize the impact on Earth'
Compassion for animals 'being appalled by how animals are raised and slaughtered', 'not wanting to support' or 'not wanting to be part of' the meat industry, 'it's not fair', 'where I live in a sort of farming community where animals are treated as if they are pieces of furniture, they are not cared for, they are simply a mean to an end', 'seeing the suffering of the chicken'
Self-compassion 'I do not blame myself', 'I do not force myself', 'I do not impose to myself', 'I look after myself better', 'taking care of my feelings, my pain', 'I had a lot of suffering', 'now I think more "I am the way I am"', 'I am softer with myself', 'I would not want to do that to myself', 'I open into pain and allow the pain to be or other discomforts there may be', 'I am more at ease with myself', 'see where my suffering comes from and change it or let it change'
Benevolence 'being of service', 'doing volunteer work'

Sustainable consumption relevant correlated process with mindfulness

Table D4: Overview of the codes used for sustainable consumption relevant correlate process with mindfulness

MORE CONSCIOUS CONSUMPTION CHOICES
General lifestyle

'Being aware of what I am consuming', 'being aware of not using napkins when I go out to eat or using as little materials', 'I still watch TV sometimes but I do not turn it on that much. When I look at the TV, I think do I want to know this', 'Noticing how much violence there is on TV'
Eating habits 'being aware of what I am eating', 'being aware how food contribute to me', 'being aware of where I am buying my food', 'being aware of my chewing', 'being aware of what I am eating', 'being very aware of what I am eating, tasting', 'being more conscious about what I eat and what kind of effect it has on my body', 'eating consciously, really tasting, chewing, being in the moment with eating', 'I try to be conscious about everything; where it comes from, is it ok? is it respectful? is it a respectful way how people are getting it? do I pay a respectful price? etc. Does it respect the environment?', 'I am more conscious about what I consume', 'I notice when I am full so I just eat less', 'I realized I do not need to eat so much', 'When I am a the grocery store and I look at this apple that is from Portland, Oregan. And I am thinking "ok so that came over here". How did it go here from Portland, Oregan. Would it be on a truck and it was driven here? So it is looking deeply into where does this come from? Why is this here?'
Awareness of impact of food on our body 'being aware of what my body needs', 'feeling more what certain food does to my body', more conscious about what I ate and what kind of effect it has on my body', 'becoming more conscious of what kind of effect food has on by body'
Mobility habits **'**if I do not think about what do I need for tomorrow and the next day and the next day, I could be sitting in the car and driving for 15 minutes to buy one litre of milk if I was not careful. But because I do not want to pollute the atmosphere by driving my car nor do I want unnecessarily burn a whole lot of petrol, I am very careful about my shopping', 'I try to be mindful about the use of the fuels and to cycle a lot or to use trains a lot (…) years ago I did not think about that a lot'
Living habits **'**I did not think so much about how much water I was using for example', 'I am more conscious of how much water I use when I do the dishes. I think about it more', 'I think about energy and water', 'I collect water from the rain in tanks so any water I need to use in the garden is from the rain. So I am not using water that is coming from the system which has been purified. That was directly related to mindfulness (…), previously I did not think to do that'
Less affected by advertisement 'I am less affected by advertisements and things like that. Although sometimes I see something and I think "oh Jee that's really neat" and I will think "do I need this or do I just want it". And then I can decide not to have it. But that's also with mindfulness.'
Conscious about the effect of sales, etc. 'I do not do my grocery shopping at the same time as everyone else; I avoid rush hours now because then I am more dispersed and I buy things that I do not need; I buy because it is on sale or it is cheap or because everyone is buying. If my attention is scattered I buy things on sale that I do not need. I will just follow what the system wants me to do and not be conscious about it. Mindfulness gives me space to step back before I do something'
CARE & CONCERN FOR THE ENVIRONMENT
Deliberate environmentalism 'wanting to save the environment', 'trying to take care of the Earth', 'questioning what is wholesome for me and the environment', 'thinking of the planet we live on', 'finding important to focus more on the environment, 'trying to look at ways I can counteract any damage that I do to the Earth', 'understanding the need to do something that can positively affect the environment rather than negatively affect' 'choosing options that supports the environment', 'supporting eco-friendly ways of doings', 'wishing better options would exist', 'looking at what is good for the survival of the planet'
Concern about general environmental degradation 'looking at what is good for the survival of the planet', 'hurting to see that the Earth is damaged'
Concern about pollution and emissions 'not wanting to poison the Earth', 'not wanting to contribute to air pollution', 'not wanting to pollute the atmosphere'
Concern about resource depletion 'avoiding CO2 emissions', 'there is not an endless supply for everything', 'avoiding wasting resource', 'wanting to save water', 'wanting to save energy', 'avoiding to burn fuel', 'not wanting to burn a whole lot of petrol unnecessarily
Concern about deforestation 'avoiding contributing to the cutting down of trees', 'we need to stop cutting down trees'
Concern about nature conservation 'mourning about the loss of the beauty of the Earth', 'wanting to protect wildlife'
Thinking more of the impact of my lifestyle or behavior on the environment **'**That also had to do with the insight I got through mindfulness because I was thinking about the effects I have on the environment more', 'I am more aware of my lifestyle and how all these elements in my lifestyle cause a lot of suffering', 'I think I am much more aware of the planet and all the ways in which without thinking we can damage it.'
Other priorities **'**I know some people are so on the bandwagon of environmental issues and I agree we need to stop fishing, we need to stop cutting down trees, etc. but I cannot do it all. What I try to do is relieve suffering where possible. And it's just different'
Equality between nature and humans **'**If you loose something, you mourn about it. And we do not take the time to mourn about the loss of the beauty of the

Earth’
LOWER CONSUMPTION DESIRES AND ASPIRATIONS
Needing less ‘I do not need to consume’, ‘I do not need things’, ‘I do not feel the need to buy to feel happy’, ‘I do not need more and more [stuff]’, ‘I do not want always more’, ‘I try to have less and less things’
Stronger intrinsic aspiration **‘**there was a time in my life where earning more money allowed me to spend more money and where I thought evolving materially were part of evolving in life. Over the years, and it is uncontestably a product of mindfulness, I learned to appreciate fully what I already have and to detach myself of what I would like to have. I understand that what I would like to have is actually a creation of my mind. So I started to rather than receive a pay raise, to work less so that I would have time to do things that really matter to me.’
Still material needs beyond basics **‘**I need much less from the external world. I should put a nuance in there, I do need my books’, **‘**I used to buy a lot of stuff for my sport activities, a new bike, new shoes. I bought lots of cds. I went to cinema, I do notdo that anymore. (…) I buy less stuff but I buy more holidays options’
Different way of enjoying what I already have **‘**I was always buying new stuff and always wanted more and more. But right now, (…) I am really happy with what I have got, and in a different level; I have maybe the same clothes as last year but then I remember what I experienced last year and that is also a treasure. I can find different ways of joy about same things’
LOWER IMPULSIVE CONSUMPTION
Not (or less) eating on craving ‘not just grabing food’, ‘not eating on craving’, ‘not eating impulsively’
Still eating on craving sometimes **‘**Sometimes when I am stressed the first thing I do is still to grab something to eat’
REDUCED INTENTION-BEHAVIOR GAP
Internalized understanding of the need to protect the environment ‘understanding from the heart’, ‘it’s something I really got in my guts’, ‘internal conviction’, ‘internal motivation’, ‘internal reality
Putting more into practice my environmental awareness **‘**I was always aware, it was in my head, I knew, I understood what we were doing to the environment. (…) But I did not practice it anything as much like I practice it now’
More caring all together **‘**It’s something that comes naturally because as you are more connected with yourself, and take better care of yourself, you will automatically also take better care of what is around you and hence also nature’

Changes in consumption patterns

Table D5: Effect of mindfulness on lifestyles and consumption patterns

GENERAL LIFESTYLE CHANGE
Multi-tasking less ‘I do not try to do multi-tasking anymore’, ‘I am more into single tasking
Doing more spiritual activities ‘I go to retreats’, ‘I read about spirituality’, ‘I am in a Sangha’, I go regularly to a Sangha’, ‘investing in retreats and spiritual growth’, ‘spending on retreats rather than on alcohol, parties and restaurants’, ‘spending on retreat instead of on clothes’
Meditating more ‘I have meditative moments’, ‘I meditate everyday’, ‘I do sitting meditation’, I practice sitting meditation’, ‘every morning and every evening I meditate’, ‘I sit on a cushion every morning’
Having more me-time ‘I spend more time alone (…)It puts me more at peace I work all day with people. So I just want to be alone’, ‘I spent a lot of time alone’
Taking care of myself more ‘time to nourish myself so that I can be fresh and available for others’, ‘time to take care of myself’, ‘looking after myself better’
Planning less activities ‘I do not cram my agenda anymore’, ‘Sometimes with my foundation, I was too busy and I could make myself crazy with too many appointments and too much to do and feeling really too responsible and making myself crazy with that. That is something I really do not do anymore’
Hurrying less ‘I got more slowly with the everyday activities I do’, ‘I do things more slowly’, ‘Before, I always did everything really fast. Now I do not run anymore’
Stopping / doing nothing

'I try to balance my time between doing something and doing nothing', 'I just sit and do nothing. Sometime I close my eyes. That has been really important because it allows you to do the next activity with more ease because you have a resting point', 'I have resting points throughout my day', 'I do time outs', 'I like practicing stopping, I stop where I am and I stop doing what I am doing and then I just feel I am here in the moment with the breathing'
Consuming less or more selectively media 'I do not watch that much TV anymore', 'I started to watch TV differently. I would exclude negative or harmful things because it could also be a toxin', 'My TV watching reduced a lot'. 'I still watch TV sometimes but I do not turn it on that much', 'when I watch TV, I think do I want to watch this', 'I also do not read the papers or listen to the news. I try to not totally exclude like if there is something really important happens, of course I want to know it. But like all the little negative news, I do not want to feed that to my consciousness', 'there was a time I woke up in the morning with radio and I never turned it off until I went to sleep', 'My TV watching would have lessened very much, I watch very little really. I am much more careful with what I watch', 'I watch very little TV really', 'I quit watching TV', 'I used to read a lot of stuff, to overload my mind with information and distract my mind. Now I only read, watch or listen to media I am really interested in'
Engaging in the real world more 'I do much more stuff in the real world (…) I could get in contact with my fears and difficult emotions. I was more confident'
Exercising more 'I am more active, exercise is definitely an important part of my daily life now', 'I do more sports', 'I exercise more by taking walks and going to formal exercise programs'
Going out in nature more 'I spend a lot of my time gardening and in nature because I have become more and more aware of nature', 'I go out in nature more'
Building/strengthening relationships 'A lot of my time goes to building relationships', 'I engage much more with people', 'I took time to heal my relationship with my father', 'I take more time to take care of those who are dear to me'
Working differently 'I quit my job so I have more time. But on a financial level, it is the opposite. But this art of living, where you live more humbly is worth it. Once I felt I was so free to do what I wanted to do, I did not get back to my job where I earned well but had a lot to do, a lot of responsibilities and was to dispersed. I prefer life now. And we never know for how long we will live', 'I have never been a big careerist. But still, there was a time in my life where earning more money allowed me to spend more money and where I thought evolving materially were part of evolving in life. Over the years, and it is uncontestably a product of mindfulness, I learned to appreciate fully what I already have and to detach myself of what I would like to have. I understand that what I would like to have is actually a creation of my mind. So I started to rather than receive a pay raise, to work less so that I would have time to do things that really matter to me', 'I stopped with the company I was working with. I quit for one year. Then I started again as an independent. I do it to help people. I do it because I like it and not because the company wants me to make a lot of money for them'
CHANGE IN FOOD HABITS
Buying and eating organic / ecological 'I eat everything ecological and biological (…) I treasure more every living being. (…) I want to respect life in every single form', 'I buy all organic food (…) I have a deeper understanding and appreciation for life itself and the connection with everything', 'I choose to eat something that supports the environment', 'I make sure that the food I eat is good for the survival of the planet', 'we buy most of our products in ecological shops', '90% of what we buy is organic'
Buying and eating fresh / healthy food 'I started to eat healthier and be more conscious about what I ate and what kind of effect it has on my body (…) You know what you put inside your body, you become it. You become your food. What do you want to become? Something healthy or a hot dog for example? The body can also work with toxins. But I do not want to give my body that much toxins. I already get so much toxins from outside, the cars, etc. The healthy stuff just makes me feel more clear and alive inside', 'I look at how is contributing to me', 'I do not like to eat something that is not healthy for me', 'I eat healthier. I think of my body, it needs food and I want to give it the best food it can have because if I will turn eighty, I have to be with my body for fifty years', I look at the ingredient list and see whether it has additives or lot's of sugar in it. (…)I am just aware of what I am eating', 'I want to give my body the best food it can have', 'I take time to look at the composition of the food we buy', 'we buy very little processed food, we eat mostly fresh products', 'I eat food that is good for me. (…) I am conscious of what I eat so I do not eat things that are not good for my body', 'I feel more what certain food does to my body. Some food make me feel better, others don't. I am also thinking about what kind of food is good', 'I am mindful with food. I feel what it is doing to me', 'I choose food which is good for my body on the long term'
Buying and eating local food 'I buy food that support local agriculture', 'I do not buy food that has travelled from far'
Eating mostly vegetarian[1], 'vegan[2] 'I am more aware of what my body need so automatically I also started not feeling comfortable with eating meat (…) Also I treasure more every living being. I do not want to eat something that is killed', 'I have committed to a vegan lifestyle (…) I think it is not fair to treat the animals in that way', 'I am eating less meat and dairy products again', 'I do not eat meat', 'I stopped eating meat', 'I almost eat vegan all the time', 'I eat meat once in three weeks or in a month', 'We became vegetarian, we do eat fish sometimes but we do not eat any meat. I am just really appalled by how animals are raised and

slaughtered and I just do not want to be part of that, not in anyways do I want to be part of that', 'I try to cook vegetarian in a way that would be acceptable for meat eaters and I was able to do that, that's what I mean by being creative about how you cook and what you serve. Because I did not want to cook meat anymore but how do you replace it?', 'I turned vegetarian because I discovered it can be so good so meat does not tempt me anymore', 'We eat vegetarian'
Eating more meat 'Before I had an intellectual understanding of vegan being the best way to eat but I was not feeling it; I did not have compassion for the animals. I just had this intellectual and rational thought that it was the good way of living and I wanted to be good so I had to be vegan. So I actually forced myself to be vegan. When I started to practice, I realized you are not doing this with your heart, you are just pushing yourself, you are punishing yourself, you are forcing yourself. And then I stopped eating vegan because it did not feel right. Then I ate a lot of meat again. Now I am actually eating less meat and dairy products again'
Drinking less or no alcohol 'I stopped drinking alcohol', 'I do not drink alcohol anymore', 'I hardly drinking wine anymore'
Grocery shopping outside of rush hours 'I do not go at the same time as everyone goes grocery shopping, I avoid rush hours now because then I am more dispersed and I buy things that I do not need, I buy because it is on sale or it is cheap or because everyone is buying'
Eating less 'I eat less', 'I used to eat more', 'I realize that I do not need to eat so much', 'I used to eat really a lot, till I could not eat anymore', 'I notice when I am full and I think I had enough and I save the food, so I just eat less'
Eating slower 'I eat slower', 'I slowed down in eating', 'I take time to eat'
Eating mindfully 'I eat more consciously. I try to really taste, to chew, to be in the moment with eating', 'I eat mindfully. So I do not listen to the radio, I do not put on the computer, I just eat', 'I try to be in the moment with eating', 'I eat more consciously', 'I am mindful with eating. I feel what it does to me'
Chewing consciously 'I take time to chew', 'I am aware of my chewing'
Savoring more 'I really taste', 'I savor', 'I appreciate food more. I am more grateful for food and for our planet being able to provide food', 'I really enjoy my food', 'I take time to smell and taste my food', 'I am aware of what I am tasting'
Eating less on craving 'I used to eat when I was stressed now it's getting much better', 'I am not just eating on craving', 'years before I would think "oh I want to eat that chocolate bar" and I ate it I only tasted it with my tongue. (…) now I see the pattern of greed behind that and the need for intense taste and when I eat mindfully so I could change the pattern of eating sugar, chocolate bars, etc'
Cooking mindfully 'I enjoy cooking mindfully, cooking for me and my wife in a meditative way', ' 'when I work in the kitchen, I really do that without any distraction, without listening to music. (…) I really take the time to get in the activity very mindfully. (…) I can relax from my work by doing it', 'I enjoy cooking more, now I do it more mindfully (…) I take time to cook'
CHANGE IN MOBILITY HABITS
Holidaying differently
Cycling more 'I bike regularly', 'I am also cycling a lot more again then I used to', 'I went everyday to work by bike. I did not want to go by car, I just wanted to not burn any fuel any more because of the environment. Years ago I did not think about that a lot. I was thinking about the effects I have on the environment more. I still try to go lots of my ways with the bike or with train and not use the car often. At the moment I go by bike and by train to work. But before I would have gone by car.', I use the bicycle more', 'I do almost everything with the bicycle', 'I use the bike more than before'
Walking more 'I often go walking', 'I walk regularly', 'I walk more because I want to walk mindfully', 'I made a habit of walking everyday', 'I walk more than before', 'I like walking a lot'
Walking mindfully 'I often go walking in the forest that is for me my meditative moment', 'I walk mindfully', 'I do walking meditation', 'If I think it is good, I do a meditative walk'
Commuting by public transport more **'**I try to go lots of my ways with the bike or with the train'
Driving less 'I do not drive too much', 'I start to reduce my car driving', 'I drive less', 'I use my car less', 'I try to go lots of my ways with the bike or with the train and not use the car often', 'I try to limits the use of my car as much as possible', 'I used to use my car to do grocery shopping, and things like that. I do not do that anymore', 'I live in the middle of nowhere and if I do not think about what do I need for tomorrow and the next day and the next day, I could be sitting in the car and driving for 15 minutes to buy one liter of milk if I was not careful. But because I do not want to pollute the atmosphere by driving my car nor do I want unnecessarily burn a whole lot of petrol, I am very careful about my shopping. So I drive less by being mindful

about my shopping', 'I do my grocery shopping by bike instead of by car so I do my grocery shopping more often which is also good because then I buy more fresh products'
Driving more 'I started to drive a lot'
Purchasing low emission car 'I got a low emission car. It was important to me that I do not contribute to much to the air pollution', 'we bought a hybrid car'
Eco-driving **'**I do not drive that fast anymore, I try to drive at a speed where the car needs as less fuel as possible'
Planting trees to counteract driving emissions **'**I am trying to look at ways I can counteract any damage that I do to the Earth say by driving. I think how could I counteract that? One of the things I do is plant trees.'
CHANGE IN LIVING HABITS
Cleaning mindfully 'I do household tasks mindfully', 'I do the dishes mindfully', 'Doing the laundry, washing up used to be annoying for me. Now it is like a practice, now it is a positive activity. I think "yeah, I can take my dirty laundry and make it clean again and now I have new stuff to wear', 'Cleaning the house became a pleasure'
Showering less frequently 'In the summer I do not shower as much. Some days I will go 2-3 days without showering. Is that weird? No, because I will be sweaty anyway so that's fine. So I do not shower every day in the summer. In the winter, I like warm showers but I try not to have too much of a hot shower in the winter', 'even though we do not have a lot of sun and people say to me a solar panel cannot possibly work, it does work. If there is not hot water I have a cool shower, a cold shower or no shower', 'I am very aware of the water. Now it's so that I do not shower everyday, maybe once or twice a week but I always wash myself at the sink'
Showering shorter 'I take shorter showers', 'I shower less longer'
Dishwashing consciously 'I am more conscious of how much water I use when I do the dishes', 'I do not use the dishwasher anymore because it consumes so much energy and water. I only wash the dishes once a day so I am using as little water as possible'
Doing the laundry when it is full 'I only put on the washing machine when I know I have plenty of washing to do and that can be hard sometimes because I live alone so there is only my clothes. So I could be looking for a particular blouse or jumper and think "oh that is still in the wash', 'I only do laundry when my basket is full'
Collecting rainwater for the garden 'I collect water from the rain in tanks so any water I need to use in the garden is from the rain'
Flushing the toilet consciously 'I am careful with flushing toilet. I think about how much water it takes'
Telling a prayer for the Earth when flushing the toilet 'Every time, when I flush the toilet, I say a little prayer to the Earth because I know there is too much water in it and it breaks my heart when I flush but at least every time I make an offering to the Earth because I thank the Earth that I am able to do that'
Installing a solar panel shower 'The water of my shower is heated by a solar panel. (…) If there is not any sun, I have a cool shower, a cold shower or no shower'
Heating less the apartment 'We do not heat that much our apartment'