BACHELOR THESIS

‘Climate change protests are important, but so is flying and seeing the world’

Exploring how millennials handle discrepancies between intentions and actual environmental behaviors

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Abstract

Background and purpose: Sustainability has recently been a hot topic and many millennials show their concern about the future of our planet. The rising environmental problems are heavily discussed and it is shown that it is caused by human behavior. In order to preserve the planet it is needed to understand why individuals do not behave sustainably. The purpose of this study is to explore the intention-behavior gap that is occurring among millennials. This research examines the possible dissonance reduction strategies that millennials use in different domains of sustainability.

Method: Qualitative research with semi-structured interviews were conducted with 20 millennials to explore the reasons of less sustainable behavior. A non-probability sampling is used by combining convenience sampling and snowball sampling. Participants were interviewed via online conference programs with questions asked about their sustainable behavior in general and within specific domains: holidays, transportation, waste, energy and consumer behavior. Participants were asked to grade their sustainable behavior and explain the reasons behind their behavior in order to find out dissonance reduction strategies.

Results: Results show that the participants in general are positive and satisfied about their behavior in different domains. The highest scoring domains are transportation and waste and the lowest scoring domain is holidays. In general, many dissonance reduction strategies have been used in different domains. Individuals, for example, prioritize convenience over sustainability when making decisions. Moreover, they do not think that they are able to behave sustainable because of the available facilities. Most frequently millennials perceive their behavior as sustainable, thus using it as an excuse explaining that they are already doing enough. These are a few example of the many dissonance reduction strategies that were identified. The least amount of dissonance reduction strategies are used in the highest scoring domains transportation and waste and the most on the lowest scoring domain holidays.

Conclusion: It can be concluded that inclusion of cognitive dissonance theory in the TPB is needed to explore the discrepancy between good intention and actual behavior. Millennials perceive their behavior as positive and are satisfied with their current behavior. It is suggested that this affects the intention-behavior gap as it is narrowing it down, which is decreasing uncomfortable negative feelings. It can be concluded that individuals do not feel an intention-behavior gap since they used various dissonance reduction strategies in different domains to reach consonance. All the strategies that were found in this study can be divided into clusters which are: denial of importance, validating own behavior, denial of control and denial of accountability. These strategies are used to reach consonance and give an understanding why millennials fail to behave sustainable in different domains.

Keywords: pro-environmental behavior, intention-behavior gap, dissonance reduction strategies, theory of planned behavior, cognitive dissonance

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1. Introduction

Sustainability is in recent years a widely discussed topic with rising concerns about the preservation of our planet. A survey by Dunlap, Gallup and Gallup (1993) showed that there was already a growing concern in the early ’90s about the impact industrialization has on the environment. The growing problems humans encounter and the increasing concerns about how to preserve our planet for the future generations is of main importance. Society is now more knowledgeable about the environmental problems and is worried about the future of the planet. It is argued that the more knowledge individuals have, the more they are concerned about the environment (Olli, Grenstad, & Wollebaek, 2001; Vicente-Molina, Fernández-sáinz, & Izagirre-olaizola, 2013). Currently, a considerable amount of companies and individuals focus on sustainability. Aiming to protect the world, the United Nations initiated Sustainable Developments Goals in 2015 to work on the future of our planet and transform it into a more sustainable one by 2030 (Pradhan, Costa, Rybski, Lucht, & Kropp, 2017). The growing amount of literature about ethical consumerism is a sign that society is focusing on sustainability (Carrington, Neville, & Whitwell, 2010; Sudbury-Riley & Kohlbacher, 2016). Society is aware of consequences which can be disastrous for the environment in the future.

The rising concern is apprehensible since environmental problems are threatening human lives. Irreversible environmental impacts and the volatile climate change evoke the importance of human species to reduce CO2 emissions in order to mitigate impact (Berrill, Arvesen, Scholz, Gils, & Hertwich, 2016). The rising CO2 level is troublesome since it further enhances global warming (Rietmann, Hügler, & Lieven, 2020). The temperature rise needs to be controlled in order to prevent dangerous interventions of the climate system (Gao, Gao, & Zhang, 2017). Humans are not only endangering themselves but also animals are threatened due to the emission which causes problems such as air pollution and light pollution (Dutta, 2017). Climate change is of even greater concern since it can impact our health negatively. Research has shown that climate change could result in thermal stress and more infectious diseases (McMichael, Woodruff, & Hales, 2006). The health of humans is at stake and these issues are getting visible referring to the current situation of COVID-19. In addition, climate change can result in extreme weather and floods which are threatening human populations (McMichael et al., 2006). The prospective of the future is likely to be alarming for humans. Thus, the future is uncertain and humans are facing many challenges.

The environmental problem is mainly caused by humans and human behavior. With household consumption causing 72% of all CO2 emissions, it can be concluded that environmental problems are caused by human behavior (Dutta, 2017; Hertwich & Peters, 2009; Steg & Vlek, 2009). When individuals are not changing their behavior soon, the effects of environmental concerns could be inevitable (Gifford & Nilsson, 2014). In order to preserve the planet, humans must reduce their environmental impact. In various sectors, demand for behavioral change is growing such as avoiding flying and reducing meat consumption. Even if technical innovations were found to solve problems, it implies behavioral change is needed since individuals need to use technology correctly in order to make a positive impact (Steg & Vlek, 2009). Since human behavior has a tremendous impact on the planet, it has become a

main focus to shape change. Therefore, changing behavior is crucial in order to reduce the environmental impact of humans.

Even though individuals are more concerned and more aware of the environment, a gap between intention and behavior still exists. Increasingly, studies show that diets can have a positive impact on the environment, nevertheless, individuals frequently have difficulties with implementing their behavioral intentions resulting in an intention-behavior gap (Fink, Ploefer, & Strassner, 2018). It is important to understand why individuals with good intention fail to act. Research has been done in order to explain the gap between the intention and the actual sustainable behavior and try to understand why consumers do not walk their talk (Carrington et al., 2010; Kollmuss & Agyeman, 2002). There can be many different reasons for the intention-behavior gap occurring. Different barriers can influence pro-environmental behavior either positively or negatively (Kollmuss & Agyeman, 2002). It can be concluded that individuals do not always behave as intended.

Sustainability is an issue that is impacting the lives of the younger generations the most and they are aware of the consequences. A German study concluded that a majority of millennials think climate change is endangering human existence (Albert et al., as cited in Ojala, 2012). Furthermore, the main focus is fixated on millennials since this generation will be suffering to a great extent from negative consequences of climate change (Ojala, 2012). A great amount of attention and pressure is given by the younger generation to solve environmental problems such as Greta Thunberg. According to Deloitte (2019), millennials are mostly concerned about climate and protecting the environment and prioritize these issues over others. However, awareness and importance of the environment are divided amongst millennials. Millennials can be identified into groups of which the biggest group is willing to behave sustainably for the future of the planet (Kuthe et al., 2019). The interest regarding sustainability is rising among the younger generation and they want to change to preserve the planet for the future. Therefore, it is crucial to understand why millennials have good intentions but do not act accordingly.

The purpose of this qualitative thesis is to explore how millennials cope with the gap between sustainable intention and actual behavior in different domains of sustainability. This research examines behavior and considers how millennials would assess their own behavior. The intention-behavior gap will be generally defined as why millennials do not behave as intended regarding sustainability. The aim is to understand why millennials eat sustainable but do not act sustainable regarding traveling. Exploring the discrepancy can help to enhance more pro-environmental behavior amongst millennials by understanding the core problem of the difference between sustainable behavior. Therefore, theoretical contribution is provided to understand how individuals cope with the intention-behavior gap in certain domains of sustainability. The following research question is formulated:

'How do millennials cope with a gap between sustainable intention and behavior in different areas of sustainability?'

In order to answer the research question, the following sub-questions should be answered. Answering the sub-questions can lead to a better understanding of the research question. As the main question is to answer how millennials cope with the gap, the answer could be derived from the following sub-questions:

'What is the current behavior of millennials regarding sustainability?'
'To what extent is there an intention-behavior gap regarding sustainability among millennials?'

It is crucial to understand how millennials cope with the intention-behavior gap in different domains. Current literature is focusing on predicting sustainable behavior and explaining why certain sustainable behavior occurs using theories such as the TPB. However, intention frequently is not a strong predictor of sustainable behavior and the inconsistency between sustainable intention and behavior implies that the cognitive dissonance theory should be included in order to explore the gap. Humans do not always make rational and conscious decisions and it is difficult to accurately predict sustainable behavior. It is generally unclear why millennials still do not behave sustainably. McDonald, Oates, Thyne, Timmis and Carlil (2015) suggest that more qualitative research is needed to understand the nature and extent of cognitive dissonance regarding less sustainable behavior. The cognitive dissonance theory has been used by studies in the domain of flying to explore why millennials do not behave sustainably (Juvan & Dolnicar, 2014; McDonald et al., 2015). Nevertheless, more research is needed on what is withholding millennials to not act according to their intentions on different domains. Therefore, theoretical contribution is needed in order to explain how millennials cope with the intention-behavior gap by exploring the different dissonance reduction strategies in different sustainable domains.

A better understanding of how millennials cope with the intention-behavior gap can result in finding better solutions to shape behavior into a more sustainable one. These findings can offer practical opportunities to prevent less sustainable behavior by eliminating dissonance reduction strategies. Knowing the dissonance reduction strategies individuals use in different sustainable domains allows to develop interventions to counteract which in turn can result in a more sustainable world. This study contributes practical relevance by exploring how millennials handle the discrepancy between good intention and actual sustainable behavior in order to improve negative behavior. It is clear that changing behavior is needed, but how to achieve that is important to examine. Therefore, the results offer opportunities for practical solutions that can be recommended to enhance sustainable behavior.

The second chapter provides related concepts and explains theory that is needed in order to answer the research question. The third chapter introduces the chosen methodology of this study and explains how research is done to answer the research questions. The fourth chapter presents the main results derived from the data collections and is highlighting the different dissonance reduction strategy. Finally, the fifth chapter will provide a discussion to conclude this study.

2. Theoretical Framework

This chapter explains the theories that are relevant for this research. These theories are crucial in order to explore how millennials handle discrepancies between good intentions and actual environmental behaviors. In the following sections, literature concerning pro-environmental behavior is going to be examined. Secondly, the traditional theory of planned behavior which explains the behavior of humans will be discussed. Lastly, the cognitive dissonance and the reduction strategy will be discussed in order to understand why individuals do not act sustainably.

2.1 Pro-environmental behavior

It is important to understand different aspects of sustainable behavior regarding and understand how it differs from other behaviors. Pro-environmental behavior has different aspects compared to other behaviors. Pro-environmental behavior is described as behavior that minimizes harm or even benefits the environment (Steg & Vlek, 2009). According to White, Habib and Hardisty (2019), several aspects characterize sustainable behavior and are shaping pro-environmental behavior. The following aspects are crucial to understand pro-environmental behavior: collective responsibility, habit formation, social dilemma, and multi-faceted behavior.

Collective responsibility is occurring prominently at pro-environmental behavior since an individual's behavior is affecting other individuals and thus behavior of others performing pro-environmental behavior is crucial. Pro-environmental behavior heavily relies on others since benefits will only be achieved when a great number of people adopt the behavior to make a change. Sustainable behavior frequently entails collective participation instead of individual participation (Bamberg, Rees, & Seebauer, 2015). More than other behaviors, individuals need to know what their peers are doing. It can be concluded that a descriptive social norm is a strong indicator of sustainable behavior since individuals need to know how other individuals behave (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). The benefits of sustainable behavior are not immediate and thus individuals only behave sustainably when they see others doing it as well. It can be concluded that sustainable behavior needs to be reflected in the community since more individuals in the community are likely to install solar panels when community organizers installing them as well (Kraft-Todd, Bollinger, Gillingham, Lamp, & Rand, 2018). On the other hand, individuals are not willing to restrain behavior when others are willing to sacrifice their behavior. Schultz et al. (2007) showed that if individuals know that the majority is not performing sustainable behavior, it decreases the sustainable prosocial behavior that is expected. Therefore, sustainable behavior is a social dilemma and individuals only behave sustainably when others are doing it as well.

Habit formation is crucial since sustainable behavior requires repeated actions and thus it is needed to change old habits and shape favorable sustainable habits. The habits individuals currently have are not sustainable and changing habit is thus crucial for pro-environmental behavior (White et al., 2019). Habits are frequently automatic behavior individuals encounter and individuals have difficulties to change their less sustainable behavior to a sustainable one. Habits are seen as barriers since individuals restrict certain

actions which can cause discouragement to perform environmental behavior (Kurz, Gardner, Verplanken, & Verplanken, 2015). To encourage sustainable behavior, it is important to focus on past pro-environmental behavior since it can provoke more favorable attitudes toward pro-environmental behavior (Ertz & Sarigöllü, 2019; Stern, 2000). Individuals should be slowly guided towards a more sustainable behavior in order to break less sustainable habits. Sustainable behavior should be transformed into a habitual behavior perceived from a particular situation that automatically triggers to behave sustainably. Therefore, habits are seen as crucial since many sustainable behaviors require repeated actions.

Social dilemma is referring to a trade-off that is occurring between individual and collective interests. Luchs and Kumar (2017) showed that individuals frequently choose hedonic or utilitarian values over sustainability. Unlike behaviors such as smoking, sustainable behavior is restraining behavior in order to benefit others and therefore everyone should behave accordingly. Individuals are withholding present behavior to achieve a goal in the future that is for others (White et al., 2019). Sustainability is seen as restricting one's own needs and prioritizing values that are other than selfish values such as the environment. However, individuals make rational choices and choose options that are most beneficial with the lowest effort or money for themselves (Steg & Vlek, 2009). Sustainability is assumed to be effortful and costly which individuals are not willing to sacrifice. A trade-off between individual and collective interests is occurring where individuals choosing their own benefits over environmental collective benefits are labelled as selfish (Sara, 2014). However, pro-environmental behavior is strongly related to collective and altruistic behavior. It is concluded that being pro-environmental and being altruistic are connected (Maaya, Meulders, Surmont, & Van de Broek, 2018; White et al., 2019; Yuriev, Dahmen, Paillé, Boiral, & Guillaumie, 2020). Therefore, sustainability is demanding individuals to sacrifice their own interest for collective interest.

Multi-faceted behavior is referring to the complexity of pro-environmental behavior which involves different behaviors in different domains. According to Fujii (2006), some determinants might just have effects on certain types of pro-environmental behavior. Pro-environmental behavior is complex and is manifested in different domains. An increasing amount of research emphasizes domains with the most influential environmental impacts such as consumption, traveling, transportation, waste management, and household behavior (Peattie, 2010; Yuriev et al., 2020). These are the main areas that have been frequently examined and each domain has different unique sustainable behaviors. Pro-environmental behavior entails a wide range of different specific behaviors that differ in regards to knowledge and effort (Heimlich & Ardoin, 2008). An individual can be sustainable in general but it does not mean that this sustainable behavior will be reflected in other domains. Individuals that are more environmentally concerned may be inclined to reduce their energy usage but may not be inclined to alter consumption to reduce their consuming impact (Heimlich & Ardoin, 2008). Therefore, pro-environmental behavior is complex and entails various behaviors that are unique in each domain.

It is needed to consider several aspects regarding sustainable behavior which can be divided in several behavioral categories. According to Paswan, Guzmán and Lewin (2017), there are three categories for pro-environmental behavior namely supportive behavior, active

behavior, and lifestyle behavior. Supportive behavior is focused on short term and only requires getting involved in an environmental cause or financially supporting them (Paswan et al., 2017). Active behavior is moderately focused on long term which entails behavior such as boycotting products that are damaging the environment is needed (Paswan et al., 2017). This behavior does not necessarily satisfy individual's immediate benefits. Lifestyle behavior is focused on long-term which means individuals are embracing a life philosophy with regards to conservation where a more serious conservation behavior is needed to reduce energy usage such as replacing traditional light bulbs with better energy-efficient bulbs (Paswan et al., 2017). The result of this behavior satisfies long-term benefits. These behaviors are discussed and are supported regarding the costs and benefits of a certain behavior (Steg & Vlek, 2009). Pro-environmental behavior has different forms of actions and this will be the main areas and the framework in which this study will be conducted. Having a clear understanding of the different types of behaviors, it is possible to understand behaviors in different domains and which domain can be improved the most.

2.2 Theory of Planned Behavior

This research uses Theory of Planned Behavior (TPB) as a framework for understanding the sustainable behavior of individuals. TPB is a theory to explain and predict the behavior of humans. The theory suggests that an individual's intention to behave in a certain way is a primary predictor of behavior (Ajzen, 1973). It is a model of decision-making that depicts how intention to perform a certain behavior is influenced by three factors namely subjective social norms, perceived behavioral control (PBC), and attitude towards the behavior (Fishbein & Ajzen, 1975). When performing sustainable behavior these factors are important to consider in order to understand why individuals are performing certain behaviors. If these three factors are applied, individuals will have high intentions to perform sustainable behavior (Power, Beattie, & McGuire, 2017). Individuals will consider performing to act sustainable when their intention will be high, thus high intention will result in actual sustainable behavior. The theory of planned behavior explains that the more favorable the attitude and subjective norm regarding behavior in combination with the PBC, the greater the intention to accomplish and performing a behavior will be (Ajzen, 1991). Therefore, it is important to take TPB into consideration in order to understand sustainable behavior. The above-mentioned factors are important in order to understand behavior and thus are further elaborated:

Attitude. Attitude is shaping the intention of an individual to behave sustainably and has long been acknowledged as a strong factor in shaping behavior. Attitude relates to whether an individual has a favorable or unfavorable evaluation or appraisal of the behavior (Fishbein & Ajzen, 1975). When individuals evaluate certain sustainable behavior positively, they are more likely to behave more sustainably. Moreover, past behavior influences attitude in which high level of satisfaction with past behavior can result in positive attitudes towards sustainable behavior (Ertz & Sarigöllü, 2019). Getting individuals familiar with sustainable behavior can provoke individuals to perform pro-environmental behavior. Thus, attitude is affecting intention directly.

Subjective Norm. What others think about an individual's behavior is impacting how an individual behaves. Subjective norms are beliefs regarding whether other people think an

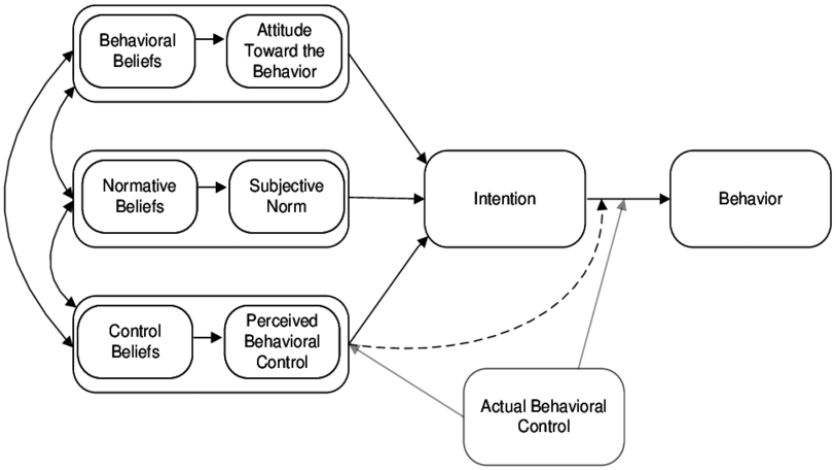
individual should engage in the behavior (Testa, Sarti, & Frey, 2019). Society can shape an individual's behavior and out of fear for social rejection an individual can choose to behave sustainably. Subjective norm emphasizes the perceived social influence toward a specific sustainable behavior (Yang, Chen, Wei, & Su, 2020). It refers to the belief or perceived social pressure to behave or not behave in a certain way. Therefore, whether certain behavior is socially accepted plays an important role for individuals to behave more sustainably.

Perceived Behavioral Control. PBC shows how an individual perceives to be able to act a certain behavior. PBC is shaped by an individual's perception of personal and environmental factors that encourage or restrain the ability to behave in a certain way (Popescu, Rusu, Dragomir, Popescu, & Nedelcu, 2020). Individuals need to have a feeling that they are able to perform a certain behavior otherwise they will be discouraged to behave sustainably. Stern (2000) describes it as knowledge and skills that are needed to perform an act. Individuals need to have information in order to behave sustainably such as the information that buying cheap clothes is impacting the climate more than buying packaged products. In the TPB framework, PBC also has an indirect impact on behavior (Carrington et al., 2010). Therefore, PBC is enabling the feeling of having control over certain pro-environmental behavior.

The research of Fishbein & Ajzen (1980) has provided a theoretical framework showing that only situation-specific cognition is a direct determinant of a specific behavior (see Figure 1). TPB explains that an individual to act is guided by three kinds of situation-specific beliefs namely beliefs about normative expectations of others, beliefs about possible consequences of the behavior, and lastly beliefs about present factors that could enhance or restrain performance of the behavior (Fishbein & Ajzen, 1975). Thus, it is important to understand how behaviors work and how there are differences in sustainable behavior. Many situation-specific factors influence sustainable behavior which is crucial to understand.

Figure 1

Situation-specific beliefs Theory of Planned Behavior



2.3 Extending Theory of Planned Behavior

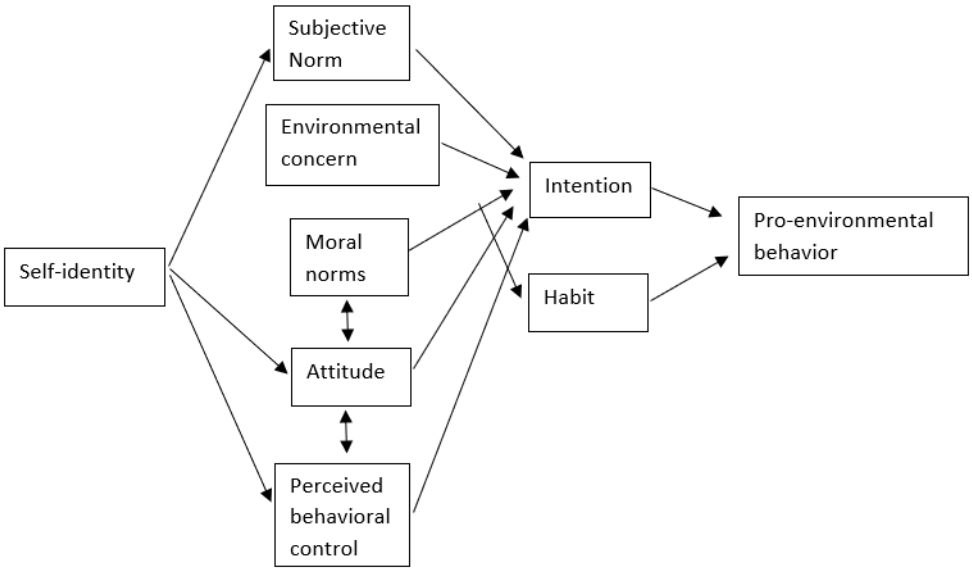
Despite the extensive use of TPB to explain pro-environmental behavior it is argued about the incompleteness of the theory (Holdsworth et al., 2020; Steg & Vlek, 2009; White et al., 2019). Power et al. (2017) argue that using TPB to approach green consumption has limitations because it assumes that pro-environmental intentions will result in pro-environmental behaviors. Individuals are unaware of the reasons why they make certain choices. This is further supporting the poor relation between pro-environmental intent and actual behavior (Bamberg, 2003). It is criticized that the TPB is explaining only a certain percentage of the variance of actual behavior (Armitage & Conner, 2001). Thus, it can be discussed whether actual behavior is predicted by the TPB and the assumption that behavior is a linear process can be argued. It is mentioned that the model is emphasizing the behavior of individuals too much while neglecting individual's identity (Mancha & Yoder, 2015). The focus should be on both aspects since behavior shapes identity and identity shapes behavior. Moreover, research shows that actions are not only guided by conscious, linear decisions but also by not rational, associative system thinking (Sheeran, Gollwitzer, & Bargh, 2013). Araujo-Soares, Rodrigues, Presseau and Sniehotta (2013) argue that the model is neglecting the impulsive component where individuals are less conscious about their behavior. The TPB is assuming individuals are rational with the decisions and tend to forget to consider failures such as not being aware of the consequences of your behavior. Sustainable behavior does not necessarily satisfy the individual's own interest which is the presumption of the TPB and thus other factors should be included (Bamberg & Möser, 2007). Therefore, TPB is not able to fully predict sustainable behavior.

Different variables have been concluded to have an impact on sustainable behavior. A growing body of literature is extending the TPB to explain pro-environmental behavior. Yuriev et al. (2020) analyzed that the majority of articles have extended the TPB by implementing new variables as direct predictors of intention. Stern (2000) argues that the variables knowledge and habits, which the latter refers to past behaviors, are not in the theory explaining the influence on green behavior. Furthermore, environmental concern, for example, could be a third factor that has been shown to influence intention and behavior (Donald, Cooper, & Conchie, 2014). Moreover, Gkargkavouzi (2019) contributed to TPB with variables habit and self-identity in a comprehensive model. Lastly, meta-analysis supports the role of moral norms as a predictor of pro-environmental behavioral intention (Bamberg & Möser, 2007). It is clear that TPB is not able to fully predict sustainable behavior and many more variables should be added to different pro-environmental behavior. Individuals are not only influenced by attitude, subjective norm, and PBC to behave sustainably. Pro-environmental behavior is affected by habit, self-identity, moral norms, and environmental concern. Therefore, an overview of the extended TPB is provided (see Table 1 and Figure 2).

Table 1
Extension TPB with variables

Variable	Description	Author
Habit	Habit are regarding automatic behavior	(Stern, 2000)
Environmental concern	Awareness of the consequences of behavior	(Donald et al., 2014; Fujii, 2006)
Self-identity	Refers to the individual's representation of self	(Gkargkavouzi, 2019)
Moral norms	Referring to the feeling of strong moral responsibilities that are experienced	(Bamberg & Möser, 2007)

Figure 2
An extended model of TPB



2.4 Cognitive dissonance

Several models try to predict sustainable behavior, however, why individuals choose to not behave sustainable is not explained by the TPB. The TPB postulates that individuals are goal-directed and adhere to certain steps that result in performing a certain action (Ajzen, 1991). In reality, there is a misalignment between intentions and actual behavior (Carrington et al., 2010; Power et al., 2017). This discrepancy is called the intention-behavior gap and an increasing body of research tried to identify the possible causes that result in an intention-behavior gap at different sustainable domains. Even though individuals are aware of their negative environmental impact, they do not change their behavior but instead offer a wide range of explanations justifying their actions to reduce dissonance (Juvan & Dolnicar, 2014;

McDonald et al., 2015). Individuals try to reduce the gap, resulting in not acting accordingly.

An intention-behavior gap is explained by the cognitive dissonance theory, which is the main focus of this study. The theory presupposes that individuals prefer to keep consistency among different cognitions such as behaviors, values, thoughts which are supported by the consistency principle (Festinger, 1957). It explains the psychological discomfort individuals experience when an inconsistency between cognitions and their behavior is occurring. This discomfort provokes individuals to compensate for the occurring discrepancy (Lavergne & Pelletier, 2015). Individuals react to cognitive dissonance by altering their beliefs or behaviors in order to modify the state of dissonance into a state of consonance (Kassarjian & Cohen, 1965). This will be an important aspect of this study to understand why individuals behave differently between different sustainable domains.

Individuals can choose to change behavior in order to reduce cognitive dissonance. When individuals encounter opposing cognitions, they are more likely to change behavior to reduce dissonance (McGrath, 2017). Cognitive dissonance is seen as a factor impacting pro-environmental behavior (Osbaldiston & Schott, 2012). Therefore, cognitive dissonance plays an important role to change behavior positively. Dickerson, Thibodeau, Aronson and Miller (1992) showed that cognitive dissonance resulted in individuals conserving more water than usual. However, cognitive dissonance is frequently a result of the evaluation of past behavior, which is not possible to adjust anymore, thus individuals will change attitude in order to keep harmony with their cognition (McDonald et al., 2015). Therefore, individuals frequently do not change behavior but instead alter their attitude to align with their behavior.

2.5 Dissonance reduction strategies

In order to prevent the discomfort individuals experience from cognitive dissonance, individuals have different strategies to cope with this discomfort. Festinger (1957) explained that there are three common ways of reducing dissonance namely changing cognitions, creating new consonant cognitions, or reducing the importance of dissonance. Instead of changing behavior, individuals prefer an easier strategy which is altering beliefs. These strategies can be specifically explained by individuals who change their attitudes, distract and forget, trivialize, deny responsibility, add consonant cognitions, and act rationalization (McGrath, 2017). Research shows that individuals are more likely to trivialize instead of directly changing cognitions (Lavergne & Pelletier, 2015). These strategies will be very important in this study since it is explaining why individuals do not choose to change their behavior. Many of these strategies are used to justify less sustainable behavior.

Less sustainable behaviors are justified by various reduction strategies that can be identified. Research showed that environmentally concerned individuals may not choose to behave sustainably since physical, social barriers, and not having opportunities to learn pro-environmental behavior can intervene in intention and behavior (Biggar & Ardoin, 2017). The convenience of behaving in a sustainable way may be affecting differently on various types of pro-environmental behavior (Fujii, 2006). The following reductions strategies are used in the field of sustainability.

Individuals can weigh out different values which are affecting the intention to behave sustainably. Individuals prioritize certain aspects more than sustainability. It can be seen that individuals alter their beliefs to behave differently. The following aspects can be explained:

- Individuals generally favor convenience and comfort which are primarily two aspects that influence pro-environmental behavior (Kollmuss & Agyeman, 2002). Individuals believe that life should be made easier and act according to this belief.
- A large barrier was found in the benefits and costs sustainable behavior entails in terms of money and time (Power et al., 2017; Steg & Vlek, 2009). Financial aspect is a value that individuals believe needs to be satisfied.
- Individuals frequently prioritize other values such as having the freedom to travel (Becken, 2009; Buckley, 2011; Lorenzoni, Nicholson-Cole, & Whitmarch, 2007). They argue that they prioritize enjoyment and want to forget about the struggles in daily life and thus neglect sustainability (Wearing, Cynn, Ponting, & McDonald, 2002). Individuals do not want to be constantly reminded of negative aspects and thus focus on these positive beliefs.

Individuals can focus on the collective, social aspects of sustainability. They believe that it is a collective problem and are not inclined to behave sustainably because everyone needs to behave sustainably. Having a collective view where everyone should contribute to making a change is an aspect where normative beliefs play an important role. The following aspects can be explained:

- Individuals do not have time to change their behavior, argue that the personal impact of changing their behavior is negligible and believe that technological solutions are going to solve the problem (Gössling et al., 2007; Lorenzoni et al., 2007). They think that there are others ways to make an impact instead of changing themselves.
- Studies show that individuals tend to blame others and are only inclined to change their behavior when other countries are changing or moreover are even denying responsibilities by criticizing organizations (Rathouse & Scarles, 2010; Gössling, Hultman, Haglund, Källgren, & Revahl, 2009). Individuals think it is not only there contribution and that everyone should behave sustainably.

Lastly, individuals can doubt their own knowledge and skills which affects their sustainable behavior. This strategy can be used by individuals thinking that they are not able or capable of behaving sustainably and thus blame it on the possibilities. The following aspects can be explained:

- Greater access to various facilities has been found to be the largest factor that influences acting in a sustainable way (Power et al., 2017). Individuals think that they are limited in their actions because of the possibilities they have.
- Research state that not having the right information to choose the right sustainable option or not knowing the impact certain actions have on the environment resulting most frequently in less sustainable behavior (Juvan & Dolnicar, 2014; O'Rourke &

Ringer, 2016). Individuals blame that they are frequently not aware of it and do not realize what impact they have.

Thus, research shows that there are a great number of dissonance reduction strategies individuals use to cope with the intention-behavior gap.

The aforementioned theories were discussed in order to understand sustainable behavior. It can be concluded that pro-environmental behavior is complex and has different elements that are needed to be considered. The different elements contribute to a better understanding of what pro-environmental behavior entails. TPB is used to understand and predict behavior, however, it is important to understand why individuals do not behave accordingly. While the limitations of the theory have been discussed, a clearer perspective on predicting sustainable behavior can be formulated by adding the cognitive dissonance theory. The linear process from intention to behavior is disrupted by different dissonance reduction strategies. These noises are explaining the gap between intention and behavior and how individuals cope with the gap. Individuals either adjust their beliefs or their behavior to narrow the gap and since adjusting behavior seems difficult, individuals seem to choose to adjust their beliefs. There are a great number of factors that can restrain individuals when making choices in sustainable behavior. Therefore, it is interesting to explore what is causing individuals to not behave sustainable and use the cognitive dissonance theory to examine various dissonance reduction strategies. It is important to use these theories to examine the reasons why individuals still do not behave sustainably and what is causing the weak relation between intention and behavior.

3. Method

The purpose of this chapter is to introduce the research methodology for this study regarding how millennials cope with their intention behavior gap regarding sustainability In order to conduct reliable and valid research, it is important to discuss the research method. First of all, an overview of the research will be provided. Afterwards, the participants, interview guide procedure, and data analysis will be discussed.

3.1 Research design

The aim of this research is to explore the discrepancy between sustainable intention and behavior of millennials. The study tries to explore the intention-behavior gap that occurs and is approved by the BMS ethical committee (see Appendix F). Ethical considerations such as privacy, consent, and control of data are approved by the committee. A qualitative approach is chosen because it enables a deeper understanding of why millennials have difficulties to behave sustainably in certain domains and explore the data in order to understand what causes the intention-behavior gap. Exploring a social phenomenon is chosen via an inductive approach and thus the qualitative approach was the most appropriate choice. A semi-structured interview was conducted online with 20 participants using a non-probability sampling method to analyze the data with a more variety of aspects of communication such as facial expression, gestures, tonality of conversation in order to examine the individual perceptions of reduction strategies. This study is aimed at answering the following research question:

"How do millennials cope with a gap between sustainable intention and behavior in different areas of sustainability?"

3.2 Participants

In order to explore the intention-behavior gap among millennials a non-probability sampling technique was used. This sampling method is used to explore whether the issue exists in this particular population. A mix of convenience sampling and snowball sampling is used to get the right participants for this study. In order to reduce biases that could occur from the answers of participants who are from the researcher's own personal network, it is aimed to find participants out of his own personal network. The researcher thus tried to ask whether participants could recommend a friend that would like to participate in this interview. This approach allowed a more non-probability sampling to maintain the quality of the research. Half of the sample size did not know the researcher which improved the variety of the sample a bit. This study was specifically looking for millennials and thus non-probability sampling is used to be able to reflect the population.

In this study, the sample consists of 20 participants by approaching them with a text message and spreading awareness on social media about the research. In order to make conclusions about the cognitive reduction strategies of millennials, the sample was aimed to get a variety of participants. However, this was not possible and thus the demographics of the

group are important. The sample consists of participants with a high level of education whom 75% were followed university education and 25% were followed HBO education. A high level of education is chosen since research shows that the more knowledge individuals are, the more concerned they are. Thus, individuals are aware of the problem and understand change is needed. The average age of the participants is 19.9 and is ranged from the youngest participant at the age of 17 to the oldest participant at the age of 22. Participants were primarily of Dutch nationality with the majority living in Enschede and some in Groningen. 50% of the participants were female and 50% were male. Furthermore, the living situation of the participants is divided by 20% of the participants living with their parents and 80% living independently. The current situation left implications that only enabled the researcher to reach out to participants from his own personal network. An overview of the composition of the sample is provided (see Table 2).

Table 2

Composition of the sample

Participants	Age	Gender	Level of education	Living situation
1	21	Male	University	Independently
2	19	Male	University	Independently
3	20	Female	University	Independently
4	20	Male	University	Independently
5	20	Female	University	Independently
6	20	Male	University	Dependently
7	20	Male	University	Independently
8	19	Female	University	Independently
9	21	Female	HBO	Independently
10	20	Female	University	Dependently
11	21	Male	HBO	Independently
12	19	Male	University	Independently
13	19	Female	University	Independently
14	19	Female	HBO	Dependently
15	21	Female	University	Independently
16	21	Female	University	Independently
17	22	Male	HBO	Independently
18	20	Male	University	Independently
19	17	Female	HBO	Dependently
20	19	Male	University	Independently
Total	20	100		

Note. Sample size N=20.

3.3 Interview guide

Each interview started with some demographic questions in order to understand the background of the participants. Participants were introduced by the topic with the question: *'How would you define sustainability?'* in order to gauge the understanding of the participant of the topic and break the ice. To assess behavior, participants were asked to rate their sustainable behavior in general and in specific domains. The ratings were sent in the chat where participants were able to have an over of their scores throughout the interview. The specific domains were holidays, transportation, waste, energy, consumption which were chosen based on literature. Furthermore, questions were asked to explore cognitive dissonance and thus based on the theoretical framework.

These domains were discussed and a more in-depth open-ended question was asked: *'Can you give specific and concrete examples explaining why you gave yourself this score?'* in order to frame an extensive explanation about the behavior of participants. The question enabled participants to explain their behavior with concrete examples to legitimate their scores. Participants explained their sustainable and less sustainable behavior which showed how individuals behave. Elaboration was asked when participants defended themselves to find why participants behave in a certain way. The question *'To what extent are you satisfied with your score?'* was asked in order to understand to what extent participants are satisfied with their behavior resulting to gain an insight regarding cognitive dissonance that is occurring. Furthermore, participants were asked why they were satisfied or not satisfied with their behavior. In order to understand possible dissonance reduction strategies participants use, participants were asked *'Why did you not give yourself a higher or a lower score?'* to gain even more insights into the dissonance reduction strategies participants gave to not behave sustainably. When an answer was ambiguous or unclear, participants were asked to elaborate on their answers in order to ensure that the interviewer understood what they were saying. Moreover, elaboration is asked when participants mentioned unsustainable behavior and were asked what is causing them to behave less sustainably in order to find out dissonance reduction strategies.

Moreover, after discussing all the domains the participants were asked to reflect on their answers. These reflections were examined by asking participants *'If you look back at the scores, is there anything that is striking you?'* and *'Why do you think differences occur in different domains?'* to understand why different behavior in different domains occurs. This was asked in order to gain more in-depth insight into the different dissonance reduction strategies used in the different domains. Moreover, in order to understand the intention-behavior gap, the question *'To what extent do you think your intention and behavior is in line?'* was asked to see whether participants think that a gap is occurring. To close the interview, participants were asked *'Are you still satisfied with your score?'* and *'Would you adjust your score?'* to make sure the researcher did not influence participants negatively with the questions.

The questions asked during the interview were trying to explore the cognitive dissonance theory. The questions that were asked are trying to gain an insight into the

dissonance reduction strategies of the participants and enabled participants to talk about their behaviors and give concrete examples (see Appendix A).

3.4 Procedure

The interviews were conducted online and different conference programs were used to perform the interview. Participants were approached via WhatsApp in which the topic and duration of the interview were provided. When participants were willing to participate, an agreement was reached by asking the preferred conference program. An invitation was then sent via WhatsApp with the given time and link to the preferred conference program. It was chosen to schedule two interviews a day in order to prevent mistakes occurring from being tired. Only audio was recorded in order to ensure the quality of the interviews thus it was not possible to see each other. Participants could only see their screen with the chat where they can see an overview of their scores.

Consent was chosen to be orally agreed thus every interview started with a small introduction where the participants will be informed about the research. The interview was only conducted when participants confirmed at the beginning via verbal consent, was made clear that he or she can withdraw from the interview any moment, knows that the information will be processed anonymized to protect privacy, and lastly that there are no right or wrong answers. A peaceful surrounding was chosen thus enabling the participants to tell their own stories without any interruption. There was no noise in the background and the interviewer was able to hear everything clearly. The interviewer took notes during the interview which created pauses enabling participants to tell what was on their minds at that moment and were not cut off when they were not answering the question. Participants mostly were sitting in their own room in order to prevent distractions and no interview was interrupted by unforeseen circumstances. The interviewer strictly followed the order of the questions in order to ensure structure in the interviews. The interviews revolved around sustainable behavior and thus every behavior that came into participant's minds at that moment was discussed. Furthermore, the chat of the conference program was used during the interview to refer back to the scores they gave themselves in order to give the participant a structure of the interview.

The interviews took on an average time of 49 minutes of which the most extensive interview lasting 67 minutes and the least extensive 34 minutes. However, the connection was a minor issue since the interview was done online resulting that participants were sometimes asked to repeat their answers when the researcher was not able to hear it. At the end of every interview, it was asked whether participants had anything to add or whether to want to share something that was not discussed. When the recordings stopped, participants were asked how they liked the interview in order to make sure they were not left with a feeling of guilt. Moreover, the researcher asked the participants if they would know a friend that can help to participate in the study. The interviews were recorded with a program called OBS studio in order to keep recordings from third party programs. Audio recordings were saved on a USB in order to keep the data for analyzing and not accessible for others.

3.5 Data analysis

After each interview, a small summary was written down with the main points of the interview. Transcriptions of the data were completed in the order of the interviews conducted and transcribed as soon as possible after the initial interview. The transcribed data were analyzed in ATLAS.ti to examine the responses and code the data. Segmenting data was done via open coding in order to make distinctions between relevant fragments in the data (Boeije, 2010). Open coding was done by breaking down and categorizing data which means that all data will be read carefully and divided into fragments (Blair, 2015). Raw data should be segmented into meaningful parts in order to do a proper analysis. The researcher familiarized himself with the transcripts to examine which codes could be utilized to make sense of the data. This was done by using a bottom-up approach to separate data and assign data into meaningful parts with regard to the research question and eventually resulted in a codebook draft. Some interviews were used to explore and interpret the data in order to create the codebook. Additionally, handwritten memos were used to better understand the meaning of the data. The researcher stopped coding when no new codes were emerging anymore.

An interpretive analysis is done to give meaning to the collected data. In order to understand and compare behavior each domain of sustainability was coded with the same reduction strategies to compare the different behavior of participants. In order to ensure the reliability of the research, the codebook was assessed by determining the intercoder reliability of two researchers. Two transcripts were randomly chosen to be coded by two researchers independently and resulted in several Cohen's kappa's that are sufficient which can be considered as reliable. The codebook is divided into different parts in order to ensure that each category is reliable which are: meaning sustainability, sustainable behavior, sentiment, dissonance reduction strategies, and reflection with a calculated Cohen's kappa ranging from 0.63 and 0.81 (see Appendix D). From the intercoder reliability, the level of agreement between both researchers can be concluded to be sufficient. Hence, the codebook (see Appendix B) was used to code the remaining data. Lastly, all the codes were used to analyze and try to understand the data by searching for patterns and connections, thus allowing the researcher to find the main concept.

4. Results

In this chapter, the results of the research are presented. First of all, the results of how participants perceive sustainable behavior will be shown. Secondly, an overview of the dissonance reduction strategies that are encountered during the interviews will be introduced. Thirdly, each domain will be presented with in-depth results. Lastly, a reflection of sustainable behavior of participants will be introduced.

4.1 Perceptions of sustainable behavior

As can be seen in the results, a majority of participants are aware of the concept of sustainability, which was described most frequently as to preserve and sustain the planet as long as possible. Sustainability is frequently explained as having less impact (N=10), relation with the scarcity of resources (N=12), and extending usage (N=8). Statements such as *'Being thoughtful about what we can do to be less harmful to the environment.'* (Participant 18) and *'We need to be mindful because the resources on this planet are limited.'* (Participant 1) were frequently described by participants. Lastly, participants mentioned the association with environment by stating *'I would say that you extend or yeah using a product longer.'* (Participant 10)

Furthermore, the scores that were given by the participants were all above the 5.9. Every domain was graded sufficiently, nevertheless, the grades were not above the 8. Participants do admit that their behavior is not perfect. Domains such as transportation and waste were scored the highest and holidays was scored the lowest (see Table 3). Thus, holidays is frequently seen as a difficult domain to behave sustainably because participants do like to travel. On the other hand, transportation and waste are perceived sustainably because participants separate waste and bike frequently. Participants believe that their behavior is sustainable because these behavior are slowly adopted in their daily lives.

Table 3
Mean and confidence interval scores on different domains

Domains	M	SD	95% Cl
Sustainability general	6.5	0.78	[6.14, 6.86]
Holiday	5.9	1.47	[5.21, 6.59]
Transportation	7.8	1.75	[7.18, 8.42]
Waste	7.3	0.92	[6.87, 7.73]
Energy	6.3	0.92	[5.87, 6.73]
Consumption	6.4	1.03	[5.87, 6.83]

Note. M = Mean; SD = Standard deviation; Cl = Confidence interval; Sample size N=20.

4.2 Dissonance reduction strategies

Results show that a variety of dissonance reduction strategies are used by participants to explain why they behave less sustainable. An overview of the frequency of the strategies is provided (Appendix C). Furthermore, participants use fewer reasons at higher scored domains than lower scored domains respectively 77 and 125. Individuals thus use dissonance reduction strategies more when they realize that their behavior is less sustainable.

Participants have different reasoning which is explaining how they reduce dissonance. Since a variety of strategies are used and clustering is provided to understand the mechanism of these strategies. More insights will be provided in each domain to clarify the strategies. To better understand the general mechanisms of dissonance reduction strategies individuals use, the strategies are simplified in the following clusters: denial of importance, denial of accountability, denial of control, and validating own behavior (see Table 4 till 7). A more in-depth understanding per domain will be provided in the other paragraphs.

First of all, denial of importance is a mechanism that is used by participants. They can have other beliefs that they value more which affects their intention to behave sustainably. They alter their beliefs in order to reduce dissonance by emphasizing different values: *'Because I'm a student, the priority is not on sustainability but on the price.'* (Participant 7). Clearly, individuals do not think sustainability is important enough to sacrifice other values they have.

Secondly, a mechanism that is used by individuals is to deny their accountability. This is used to show that it is a problem that they are not individually accountable for and think that if other people do not do it then they also are not accountable for it: *'It only makes sense when other people do it as well and if they do it, I'm willing to do it as well.'* (Participant 11). Individuals do not think it is their problem and disconnect by addressing it as a collective problem.

Thirdly, the mechanism of denial of control plays an important role. Individuals do not think that they are able to behave sustainable and do not see opportunities to do so: *'I do want to behave sustainable but I don't have the opportunities to do so.'* (Participant 3). Participants believe that it is not always possible to behave sustainably. They think that they are limited to what is available or what they are able to do with what they have.

Lastly, participants validate their own behavior to reduce dissonance. They justify their behavior to show that they are being sustainable and thus it is not needed to change behavior. *'Because I have the feeling that I'm contributing my part of a sustainable world.'* (Participant 1). Individuals use the mechanism of defending themselves by stating that they are doing more good than bad. They talk their bad behavior good by thinking it is permissible since they are doing it already quite good regarding sustainability. They protect themselves from the inconsistency between intention-behavior by emphasizing positive sustainable behavior.

Overview frequency dissonance reduction strategies and description of each strategy

Table 4

Cluster denial of importance

Reasons	Description	Total
Convenience	Participants prefer convenience over sustainability.	50
Financial	Participants are mentioning to look at the price instead of sustainability.	44
Time	Participants are explaining that saving time is more important than sustainability.	23
Enjoyment of life	Participants are prioritising to enjoy life and thus think sustainability is less important.	43

Table 5

Cluster denial of accountability

Reasons	Description	Total
Blaming others	Participants are shifting responsibility to others such as companies and do not think that they are accountable for environmental problems.	11
Comparing behavior	Participants are comparing their sustainable behavior with others justifying own behavior as not that bad.	30
Social environment	Participants think that less sustainable behavior of others affects negatively and influences them to behave less sustainable as well.	30
Negligible impact	Participants think that their behavior has a minimal impact on the environment and do not think that their individual behavior will make a change.	21

Table 6

Cluster denial of control

Reasons	Description	Total
Habit	Participants blame automatic habitual behaviors that they have such as forgetting to switch off the lights.	16
Facilities	Participants blame that there are no facilities for them to behave sustainable even if they want to.	56
Information	Participants do not think that they have enough information know how to behave sustainable.	14
Awareness	Participants are not always aware/thinking about sustainability when making choices.	43

Effort	Participants think it is too difficult or too much effort to behave sustainably.	30

Table 7

Cluster validating own behavior

Reasons	Description	Total
Compensating behavior	Participants think that they it is permissible to behave less sustainably because their sustainable behavior is outweighing/compensating the less sustainable behavior.	9
Playing down	Participants are playing down their actions and justify that it is not that bad.	31
Normal usage	Participants are claiming that their consumption is an average amount and state that they are not excessively over consume.	33
No improvements	Participants do not see options to improve themselves and think this is the best they can do.	18
Fair contribution	Participants perceive their behavior as sustainable and thus are fairly contributing to a sustainable world.	79

4.3 Sustainability in general

Sustainability in general was scored with an average of 6,5. The majority of the participants were satisfied with their behavior of sustainability in general (N=14, 70% of the sample). Positive environmental behavior was coded more frequently than negative environmental behavior respectively (N=36) (N=17). Participants mostly used the dissonance reduction strategy PBC showing that they do not think they are able to behave sustainably. Participants were mostly perceiving their general sustainable behavior as positive and several strategies were used by participants (see Table 8).

- Participants think that their behavior has quite improved compared to the past and this was the main strategy that is used to reduce dissonance. With the code 'Fair contribution' (N=17, 85% of the sample), participants in general were thinking that they are doing it well. With a statement such as *'I'm aware of it and that is I think already something. I think that a lot of people are not aware of sustainability.'* (Participant 14). Behaving sustainable is already seen as contributing to make a positive impact on the environment. It is not that participants are purposely harming the environment and thus they think that they are doing it well.
- Participants compared themselves with others and thought they were doing it better: *'But if I compare myself with my perspective that I have about the average Dutch person, then I would say that I'm doing it okay.'* (Participant 2). Comparing yourself and showing that you were doing it better than the average person result into feeling good about their own actions.

- Results show that participants do not always think about sustainability with the code 'Awareness' coded (N=13, 65% of the participants) with a statement such as *'Sustainability is not always on top of my mind.'* (Participant 12). Clearly, sustainability is not always on their mind when individuals are making decisions.
- Participants choose convenience over sustainability in their daily life which is coded as 'Convenience' (N=11, 55% of the sample). Participants mentioned convenience with statements such as *'I try it but often it is just convenient to go by car.'* (Participant 14). Participants prefer to have a comfortable life and see sustainability as inconvenient.
- There are not always the facilities for individuals to behave sustainable which is coded as 'Facilities' (N=11, 55% of the participants). Participants state: *'I don't have the possibilities at the moment to improve a lot for myself.'* (Participant 6). Thus, individuals do not think that they can behave more sustainable because of limited options.
- Participants stated that they prioritize enjoyment more than sustainability with the code 'Enjoyment' (N=10, 50% of the sample). Participants made it clear by saying *'I'm now in a life phase where sustainability is not a top priority for me.'* (Participant 3). They do not prioritize the value of sustainability but other aspects of their life.

Table 8
Frequency of dissonance reduction strategies sustainability in general

Dissonance reduction strategy	N
Fair contribution	17
Awareness	13
Convenience	11
Facilities	11
Enjoyment	9
Effort	9

4.4 Holidays

Holidays was graded the lowest by participants with an average of 5.9. Participants were in essence satisfied with the code 'Somewhat satisfied' (N=15, 75% of the sample). However, participants mentioned more negative behavior (N=15) than positive behavior (N=6). Participants use the dissonance reductions strategies of validating their own behavior the most since they describe their behavior as good enough thus not willing to change their behavior. Holidays is a domain where participants used dissonance reduction strategies more compared to other domains since they are aware that their flying behavior is not in line with their intention. Thus, it is chosen to reduce dissonance in several ways (see Table 9).

- A majority of the participants are playing down their flying behavior which is coded as 'Playing down' (N=14, 70% of the sample). Participants described their actions less

badly and this was made clear with a statement such as *'But that is only one time a year by plane which is in my opinion not that much.'* (Participant 3). Participants do not think they are doing something wrong and play down the act of taking the plane to make it seem less bad.

- Participants also think that they are not flying that much which is coded as 'Normal usage' (N=13, 65% of the sample). Participants state they do not travel that many times a year that it is shocking *'I think it not too bad since I go only 1 time a year.'* (Participant 8). Participants do realize that their behavior is not sustainable, but do not change since they think it is not that bad.
- Participants prioritized enjoyment more than sustainability when going on holidays with the code 'Enjoyment' (N=13, 65% of the sample). A majority of the participants value going on holidays since it is relaxing and it is their time to enjoy being relieved of everything else with statements such as *'Yeah with holidays you need to relax a bit more. Being less aware of everything. I think that it is actually better for you.'* (Participant 4). Participants think it is therefore okay to behave less sustainable since it is an exception and only once.
- Participants again have the feeling that they are not doing something wrong when going on holidays and they are doing well coded as 'Fair contribution' (N=11, 55% of the sample). It is mentioned with statements such as *'Because I think that I'm doing it somewhat well at this aspect.'* (Participant 8).
- It is stated that sustainability and holidays is not a combination that is possible since there are no possibilities to behave sustainable coded with 'Facilities' (N=13, 65% of the sample). If you want to be sustainable in this aspect, it is almost impossible as stated *'The most sustainable way of holidays is by not going on holidays.'* (Participant 7). Participants think that they do not have other options than choosing less sustainable ones.
- Comparison is used to compare themselves with others and showing the difference of their flying behavior which was coded as 'Comparison' (N=8, 40% of the participants). A statement that is used: *'I'm doing it alright if I compare it with people who go on holidays three or four times.*' (Participant 5). They compare their flying behavior with others and conclude that others are flying more frequently than they do.

Table 9
Frequency of dissonance reduction strategies holidays

Dissonance reduction strategy	N
Playing down	14
Normal usage	13
Enjoyment	13
Facilities	13
Fair contribution	11
Comparison	8

4.5 Transportation

Transportation was seen as most sustainable by participants with the highest score of 7.8. Participants frequently were satisfied with their behavior the most in this domain with a majority stating 'Somewhat satisfied' and 'Satisfied' (N=14 and N=5, 95% of the sample). Participants mainly stated that the bike was their most preferred mode of transportation in daily life *´Well, because I go by bike almost every time if I can go by bike.'* (Participant 5). Biking was the most used mode of transportation and thus participants viewed themselves as very sustainable on this domain showing more positive (N=37) than negative behavior (N=13). The dissonance strategy that is used here is denial of importance where individuals have other beliefs that are more important than sustainability. Biking is seen as quite sustainable, however, it is chosen to reduce dissonance in several ways (see Table 10).

- Participants stated that their behavior was sufficient and described themselves as that they were already doing their best to be as sustainable as possible coded as 'Fair contribution' (N=12, 60% of the sample). A statement defined it as: *´My consumption regarding transportation is I think quite good because I go by bike.'* (Participant 2). Biking every day was used to show that their behavior is already quite sustainable.
- Some participants did admit that they do not always use the bike. Frequently other modes of transportation were used because it is sometimes more convenient to just take the bus coded with 'Convenience' (N=13, 65% of the sample). Participants made it clear by stating *'but it is more out of convenience to quickly go by public transportation.'* (Participant 8).
- Frequently, they did not see other options and see it as a necessity to travel by car or train as coded 'Facilities' (N=12, 60% of the sample). Statements that showed their explanation: *'You could improve busses by making them drive on electricity but yeah you first need to realize that.'* (Participant 17). Participants argue that they do not have enough sustainable choices.
- Even though participants did travel by car sometimes, they think it is permissible to take the car or public transportation on minor occasions with the code 'Playing down' (N=7). Public transportation is seen as a fairly sustainable way of transporting themselves and thus they play down their choice for public transportation *'I assume that public transportation is less polluting because you divide the pollution amongst multiple people.'* (Participant 20).
- Time is an important aspect as well since participants state that sometimes they need to choose for a faster option such as the car which is coded as 'Time' (N=9, 45% of the sample). Participants choose the car over a sustainable option bike because it is time saving: *'It is faster to take the car instead of the bike.'* (Participant 16). Individuals state that it is worth to save time and thus sacrifice sustainability for it.
- A less sustainable option such as public transportation was used because it is free for students with the code 'Financial' (N=8, 40% of the sample). Participants stated for example: *'Of course, because public transportation is free for students.'* (Participant 14). Financial is used by participants state that they do want to pay the extra price to behave sustainability.

Table 10
Frequency dissonance reduction strategies transportation

Dissonance reduction strategy	N
Convenience	13
Fair contribution	12
Facilities	12
Time	9
Financial	8
Playing down	7

4.6 Waste

Waste was the second-highest score with an average of 7.3. A great number of participants were somewhat satisfied with their behavior (N=14, 70% of the sample). Participants in general thought that separating waste is an easy behavior and it does not entail much effort to recycle waste for them. More positive behavior (N=37) than negative behavior was mentioned (N=5). Participants use the dissonance reduction strategy of denial of control since they think that they are not able to perform sustainable behavior. It is chosen to reduce dissonance in several ways (see Table 11).

- Participants separated their trash as much as possible in every area possible and thought that they are doing it right coded with 'Fair contribution' (N=16, 80% of the sample) which is mentioned as *'I personally separate my waste on every possible aspect.'* (Participant 6). Participants believe that they are having a positive impact on the environment by separating trash.
- Separating trash was not always possible because of certain opportunities coded with 'Facilities' (N=10, 50% of the sample). Participants did admit that their student home and parents' home are impacting their recycling behavior. It depends on the facilities that are available to enable them to separate their trash *'Living in a student complex there is just one waste bin so yeah I then just throw my waste there and so there is not really an opportunity to separate waste.'* (Participant 10).
- Participants did find separating trash important but did not want to take effort to separate in detail coded as 'Effort' (N=10, 50% of the sample). Statement showing: *'Yes because I do think separating is very important, however to separate a teabag has such a minimal impact and thus not worth the effort.'* (Participant 4).
- Participants also mention that convenience is important when separating trash which is coded with 'Convenience' (N=8, 40% of the sample) by saying *'I accept the mistakes I make because I do it out of convenience.'* (Participant 11). Participants clearly choose to convenience over sustainability since sustainable options are frequently seen as less sustainable.

Table 11

Frequency dissonance reduction strategies waste

Dissonance reduction strategy	N
Fair contribution	16
Effort	10
Facilities	9
Convenience	8
No improvement	6
Awareness	5

4.7 Energy usage

Energy has been scored with an average of 6.3 by participants. Participants described more positive than negative behavior (N=22) (N=13). Participants were the least satisfied with their behavior in energy usage which is coded 'Somewhat dissatisfied' (N=7, 35% of the sample). Energy usage was a domain that was quite difficult to assess among the participants. Participants use the dissonance reduction strategy of denial of control since they think that they are not able to perform sustainable behavior. It is chosen to reduce dissonance in several ways (see Table 12).

- Participants again mentioned their contribution as the biggest reason coded as 'Fair contribution' (N=11, 55% of the sample) which is made clear: *´Yeah well with the possibilities that we have then I think we are doing it well.'* (Participant 7). They think that they do not use energy unnecessarily.
- Awareness about the usage of energy of participants was a reason participants do not behave sustainably with the code 'Awareness' (N=9, 45% of the sample). It could be shown from the statement: *'I think that you are not really aware of how much you use'* (Participant 8) and *'I think energy is difficult since I'm not really aware of how much energy I use.'* (Participant 11). Participants are not really aware of their energy usage.
- Energy was mostly included in the price students pay as rent making them less likely to focus on costs which is frequently coded 'Financial' (N=8, 40% of the sample). Participants stated that energy does not matter because all the housemates pay for it together *'It is because everyone has the attitude that we all pay for energy bills, so I don't care.'* (Participant 18).
- Energy usage is a factor that influences participants since they view their usage as normal. It was stated that it would not be that shocking that their bills will be extremely high to change their behavior *'I actually have a really low energy bill so I assume that I do not really use that much energy.'* (Participant 16).
- Energy was seen as a necessity to live and they are not able to change which was coded with 'Facilities' (N=7, 35% of the sample). Participants saw no other options: *'My study is actually based on just using my laptop so you then of course will use more energy'* (Participant 19). On the other side, participants did admit the

dependency on the usage of electronics. Participants stated that it is a normal lifestyle and a luxury they have *'It is normal for our lifestyle but if you look at the general then it really way too much.'* (Participant 15).

- Participants chose to behave less sustainable because they are looking for convenience and comfort coded with 'Convenience' (N=7). This was made clear by *'I mean I can take a really thick blanket but that is not that convenient so I would rather use the heater.'* (Participant 4). Individuals thus do not really think it is easier to warm the house up instead of putting on more clothes.

Table 12

Frequency dissonance reduction strategies energy

Dissonance reduction strategy	N
Fair contribution	11
Awareness	9
Financial	8
Normal usage	7
Facilities	7
Convenience	7

4.8 Consumption

Finally, consumption has been given an average score of 6.4 by participants. Also in this domain more positive than negative behavior has been coded (N=32) (N=12). Participants were in general satisfied with their behavior (N=14, 70% of the sample). The dissonance reduction strategy that is used is denial of importance where participants mention other values that are more important. It is chosen to reduce dissonance in several ways (see Table 13).

- A frequent reason that participants gave that makes them behave less sustainable is the financial aspect coded with 'Financial' (N=12, 60% of the sample). This was made clear by participants: *´With regard to money and costs, if you are going to cook in a student house it should be as cheap as possible.'* (Participant 3).
- Participants mentioned that they prioritize enjoyment over sustainability which is coded 'Enjoyment' (N=13, 65% of the sample). Participants mentioned that they value enjoyment more: *'I would for example not eat vegan because there are some things that I just really enjoy.'* (Participant 20). Participants do not think that they are able to restrict food that they enjoy eating.
- It is attempted to behave sustainably by eating less meat and seen as a positive contribution to the environment which is coded as 'Fair contribution'(N=12, 60% of the sample). Participants tended to think that they are doing it well stating: *'Because I think that I'm in essence doing it quite good and I believe that the fact that I'm trying to eat less meat is good.'* (Participant 13).

- Participants were not always aware of sustainability when buying products which is coded as ‘Awareness’ (N=11, 55% of the sample). They showed that sustainability is not something that is what they are thinking of when consuming *‘I think that I’m not really aware of it, sustainability is not something I immediately think of.’* (Participant 14). Participants do not really think about sustainability when buying products.
- Even though participants tried to eat more vegetarian, their environment was also limiting them to eat less meat which is coded ‘Social environment’ (N=7, 35% of the sample). Participants stated that it is not always possible to eat vegetarian especially when you live with others. When other people are not vegetarian, it impacts the behavior of participants such as *‘I think that it is more difficult for people in general to eat vegan or vegetarian if others are not vegetarian or vegan.’* (Participant 20).

Table 13
Frequency dissonance reduction strategies consumption

Dissonance reduction strategy	N
Enjoyment	13
Financial	12
Fair contribution	12
Awareness	11
Social environment	7
Convenience	6

4.9 Reflection

To finish, participants reflected on their behavior intention-behavior gap. A majority of the participants think that their behavior is somewhat in line which is coded 'Somewhat in line' (N=14, 70% of the sample). It shows that participants do not feel an intention-behavior gap occurring which can be explained by the current behavior of individuals.

Several domains provoke different dissonance strategies which are causing different behaviors participants are performing in each domain. Participants gave several reasons explaining the difference occurring between the domains of which convenience and awareness coded the most 'Convenience' and 'Awareness' (N=10, 50% of the sample) (N=10, 50% of the sample). This is made clear by *'For example with transportation, I'm looking for efficiency and convenience.'* (Participant 13) and *'In daily life, I'm not really busy with being as sustainable as possible.'* (Participant 11). Furthermore, related is the amount of effort it takes which is coded with 'Effort' (N=7, 35% of the sample). Participants stated that it is the effort it takes that causes differences with statements such as *'I think it is mostly effort. I think it is less effort for transportation to behave sustainable.'* (Participant 10).

Moreover, a difference occurred because participants have different priorities and also sometimes there are no other options coded with 'Other priorities' and 'No other option' (N=7, 35% of the sample) (N=8, 40% of the sample). Participants explained that they valued something else *´Because I have different values on different aspects of my life and they have all have a similar value but then divided in different things.'* (Participant 12) or behaved sustainable because of something else *'Because I care on that aspect more also for animal well-being, so they have a better life.'* (Participant 2). Frequently, there was also no other choice such as *'I always go by bike to the University because I do not have a car. I actually do not have other choices.'* (Participant 5).

Lastly, participants were adjusting their scores throughout the interview or at the end of the interview. Results show that participants adjust their scores in most cases higher than lower (N=12) (N=5). However, most participants still chose to keep their score the same (N=17).

5. Discussion

In this chapter, the results are interpreted. The findings contribute to the understanding of sustainable behavior among millennials and are extending the existing scientific literature. Sustainable behavior may be influenced by several factors. In this chapter, the main findings of the discrepancy between sustainable intention and actual behavior will be discussed. Secondly, the theoretical contribution of this study will be elaborated. Thirdly, practical implications will be presented in order to tackle the problem. Lastly, the limitations and future suggestion research will be discussed. To finalize this study, a conclusion will be made.

5.1 Main findings

This research aimed to explore the discrepancy between good intention and actual sustainable behavior.

First of all, it is important to answer the sub-question and know what the current behavior of millennials is regarding sustainability. The scores of all domains were above the 5.9 which can be interpreted that millennials think that their behavior is sufficient in all the domains of sustainability. However, it implies that they do not behave as intended and thus cognitive dissonance is occurring. Additionally, a greater number of positive sustainable behavior were described than negative. Throughout the years, sustainable behavior has been improved causing millennials to think that they are already behaving more sustainably compared to their past behavior, thus they are doing more good than bad. For example, millennials can use their sustainable behavior such as recycling as an excuse to not reduce the amount of waste. It can be concluded that a positive perception of own behavior can be used as a dissonance reduction strategy.

It can be questioned to what extent an intention-behavior gap is occurring among millennials. From the results, it is suggested that millennials think that their behavior is somewhat in line with their view on sustainability and thus do not see the urge to change behavior. This can be explained that cognitive dissonance occurred and is reduced by the perception of the behavior as sustainable. Thus, millennials cope with cognitive dissonance by justifying their sustainable intention with small sustainable actions. In addition, millennials do not feel an intention-behavior gap since they used various dissonance reduction strategies to reach consonance. It can be concluded that the intention-behavior gap is narrowed down by using different mechanisms to cope with the discomforting feeling of cognitive dissonance.

The main findings show that implementing dissonance reduction strategies in the framework of the TPB can be useful to explain the discrepancy between sustainable intention and actual behavior. There are a variety of dissonance reduction strategies that are used by millennials and these should be included to explain the intention-behavior gap. They use different strategies in different domains to reduce dissonance. It can be concluded that the less sustainable millennials behave such as flying, the more they are trying to reduce dissonance. Different domains provoke different strategies such as transportation and waste where millennials generally think that they are doing it well by biking and separating trash. In general, they do realize that they are not behaving sustainable and thus offer different rationales to not feel bad about their conflicting intention and behavior. Millennials do find

sustainability important but adjust their beliefs to narrow down the gap.

With the results, it is possible to identify many different dissonance reduction strategies that can be divided into clusters in order to understand the reasoning behind the strategies. These clusters are supporting the categories and research that are used in the theoretical framework. The strategies can be divided into clusters which are denial of importance, denial of accountability, denial of control, and, validating own behavior. It is suggested that a new dissonance reduction strategy that is used the most frequent is the cluster validating their own behavior. Millennials have the feeling that they are behaving sustainable and thus are already satisfied with their contribution regarding sustainability. This research is contributing and supporting the insights from other studies about the strategies that were used by millennials to cope with the intention-behavior gap in different domains.

5.2 Theoretical implications

This study is a theoretical contribution to the field of sustainability and behavioral science. The TPB is frequently used as framework in order to understand and predict the sustainable behavior of individuals. Clearly, an inconsistency between sustainable intention and behavior exists and the findings are supporting the intention-behavior gap that is occurring (Fink et al., 2018). Moreover, literature show that additional variables should be added in order to understand sustainable behavior better. Research has been done examining the factors and barriers of pro-environmental behavior (Gifford & Nilsson, 2014; Joshi & Rahman, 2015). Araujo-Soares et al. (2013) argue that failure to perform a certain behavior should be included in the framework. Thus, dissonance reductions strategies are included to support the TPB. It can be confirmed that the strategy of denial of control is partly explained by PBC in the TPB which is influencing actual sustainable behavior by reducing the intention-behavior gap. Therefore, it can be concluded that intention is not a strong predictor of sustainable behavior and the cognitive dissonance theory should be included.

Thus, this study provides a better understanding of sustainable behavior by including dissonance reduction strategies to explore the intention-behavior gap. The findings of this research contribute to the understanding of why millennials fail to act sustainably. This research is adding to the individual and social barriers individuals give for not taking action (Lorenzoni et al., 2007). The results support the cognitive dissonance that individuals experience and support other similar studies regarding the discrepancy between intention and behavior when flying (Juvan & Dolnicar, 2014; Schrems & Upham, 2020). The inclusion of dissonance reduction strategies contributes to a better understanding of behavior and this research provides identification of the strategies denial of importance, denial of accountability, denial of control and validating own behavior provides more insights into reducing the gap.

It is possible to divide the dissonance reduction strategies into clusters that are supported by literature. These clusters are adding to the existing literature with strategies such as denial of control and compensation by benefits (Schrems & Upham, 2020). This study is confirming various strategies consistent with other research about dissonance reduction. Strategies such as denial of accountability and denial of importance can be linked with studies regarding flying behavior (Juvan & Dolnicar, 2014). What this research is contributing is that

these similar strategies are used to cope with cognitive dissonance in other domains as well. However, other studies only provided general strategies that are broad and mostly not applicable to the context of sustainability. Findings of these dissonance reduction strategies are supported by research which are mentioning different strategies such as trivialization, act rationalization or denial of responsibility (McGrath, 2017). Thus, this study adds new insights into dissonance reduction strategies in the field of sustainability on different domains of sustainability.

A new strategy that has not been discussed by other research is the strategy of validating own behavior where millennials use different mechanisms to justify their behavior. Millennials might validate their behavior since they are behaving more sustainable now compared to the past. It can be argued that small sustainable acts are more accessible resulting in millennials using it as an excuse for less sustainable behavior. This mechanism can be supported by the findings were individuals think that they are doing more good than bad (Juvan & Dolnicar, 2014). However, it could be that millennials genuinely think that they are behaving sustainable resulting in no behavioral change. Quite surprisingly, millennials frequently used this mechanism by thinking that they are already contributing positively to sustainability which is coded as fair contribution. Thus, with these findings, this study is adding new insights regarding dissonance reduction strategies regarding sustainability.

Fair contribution is the biggest rationale millennials use to reduce dissonance in all the domains which is a striking finding. With this result, positive perception of millennials on their behavior could be seen as a barrier for individuals to behave sustainably. It could be explained that they have low expectations of what sustainable behavior is and thus they may perceive their behavior as sufficient enough which confirms that no change of behavior is needed. This could be related to the rebound effect which explains that the use of sustainable products such as energy-saving light can negatively affect consumption since individuals will behave less sustainable because the product is more energy efficient (Berkhout, Muskens, Velthuijsen, 2000). They might think that by using sustainable goods they are doing good, but it unnoticeably increases energy consumption which in the end negatively impacts the environment. It is suggested that millennials think that they behave sustainably to reduce dissonance even though it might be a small action.

5.3 Practical implications

The practical relevance of this study is provided by the exploration of dissonance reduction strategies. These findings can offer practical opportunities to prevent less sustainable behavior by eliminating dissonance reduction strategies. Identification of the strategies enables opportunities for public policymakers to develop interventions that will target these strategies in order to shape behavior that will be sustaining our planet. Cognitive dissonance has been used to successfully change behavior such as water conservation (Dickerson et al., 1992). Therefore, practical solutions are provided to contribute to a sustainable society.

Individuals frequently choose to change beliefs instead of behavior in order to reach reduce dissonance. They choose they change beliefs since it is easier to change beliefs than behavior. However, with the insights of different strategies that individuals give that is withholding them to behave sustainably, it is possible to overcome these barriers. Therefore, it

is needed to provide solutions to tackle these barriers in order to shape pro-environmental behavior.

First of all, individuals should be able to behave more sustainable to prevent the mechanism of denial of control. More facilities are needed allowing individuals to behave more sustainable. Research shows that facilities have a moderating effect on recycling (Chen & Tung, 2010). Currently, individuals do not have many alternatives to choose a more sustainable option. Structural intervention strategies are needed to improve contextual factors that enhance availability to perform sustainable behavior (Steg & Vlek, 2009). More alternatives should be provided to meet the demands of sustainable millennials.

Secondly, denial of accountability can be intervened by perceiving sustainability is seen as a norm in society. Individuals realize that the current norm such as having a meeting in another city is causing them to behave less sustainable. More opt-in options should be provided such as when ordering food napkins and plasticware will only be provided when customers ask for it. Sustainable behavior should be seen as normal and accepted as the norm.

Thirdly, validating own behavior can be intervened by showing individuals more opportunities than just recycling. Individuals do not see the opportunities and thus are satisfied with current behavior. This is further supported by an informational strategy that can be used as an intervention to encourage and show individuals to perform more sustainable behaviors (Steg & Vlek, 2009). Society has reached a point that recycling is getting easier but there is room to improve such as reducing the amount of waste in the first place. It needed to increase expectations in order to show individuals that their current behavior is only the tip of the iceberg.

Finally, denial of importance could be tackled by shifting the prioritization of beliefs towards sustainability instead of other values. It is needed to encourage individuals to prioritize sustainable choices when making decisions by emphasizing personal benefits. Individuals are more willing to eat natural food if they are convinced that it improves their health (Tobler, Visschers, & Siegrist, 2011). To promote more sustainable behavior, sustainability should be framed as a positive pro-social behavior that is enhancing status. Sustainability can be used to increase the reputation of an individual since it is showing that the individual is pro-social (Griskevicius, Tybur, & Van den Bergh, 2010). Thus, individuals should be proud that they choose sustainability over other values and this needs to be emphasized.

5.4 Limitations

This research paper has some limitations that are important to consider. First of all, the research has some limitations since the sample of the research was relatively small. The non-probability sampling method used possess doubts about the limitation of representing the population. The accurate and precise representation is limited and this method can influence results because of the subjective selection of the sample. Thus, the findings of this study cannot be widely generalized. Thus, this research can only give a narrow view of how millennials handle the discrepancy between good intention and sustainable behaviors.

Secondly, due to the current situation the interviews could only be conducted online which can limit the quality of the data that has been collected. Physical interviews were not

feasible, thus, participants were talking to a screen which can cause less disclosure of information. Bad internet connection resulted in some parts being missed out. These are small minor issues that are impacting the data that is being collected. The researcher needs highly developed interpersonal skills with analytic capabilities. The researcher could interpret this information wrong which can influence the quality of the data and results. Data interpretation and analysis may be difficult and complex which makes this study rely on subjective interpretation of the researcher. Thus, the results can only in a very limited way be generalized to the larger population.

Moreover, results can be misrepresenting actual behavior of participants in their daily life. Interviews were conducted one month after lockdown which could lead to participants might having a mis presentation of their behavior since there is not much that they can do. Many participants discussed their current behavior since that is the closest and most present in their minds. Moreover, social bias can occur since individuals do not always describe their own behavior neutrally (Carrington et al., 2010). Having participants to talk about sustainability nudges them towards thinking of sustainable behavior when they normally would not have. It will unintentionally raise awareness while it would not be on the top of their minds in a normal situation. Thus, the results of this study cannot be used to reflect behavior of participants fully.

Lastly, self-report methods heavily rely on the honesty of the participants. Giving a score can have some biases since individuals are not willing to grade themselves low. A high score can prime participants to think about their behavior positively which made it difficult to justify their behavior when it is already 'good'. Studies frequently show that self-reported measures of actual behavior could result in biased responses that impact the reliability of the results (de Leeuw, Valois, Ajzen, & Schmidt, 2015). Scores are therefore very subjective and the behavior of participants could be graded differently if it was scored by someone else. Self-reported attitudes to the environment may be positive, but underlying implicit attitudes may not (Beattie 2010 as cited in Power et al., 2017). Research shows that an individual's self-reported explicit attitude is frequently not in line with their implicit attitude (Steiner, Geissler, Schreder, & Zenk, 2018). The chosen method is limited since it is based on subjective answers of participants. Thus, these scores cannot be seen as objective and should be carefully considered when used as an indication of behavior.

In sum, this research is not able to represent normal daily behavior. Sustainable behavior is described as how individuals see it and it can vary due to subjectivity. Results cannot be generalized or reflect sustainable behavior.

5.5 Suggestions for future research

Further research is needed to explore how positive perception of behavior is used to cope with intention-behavior gap. In the past years, society has increasingly changed in which more individuals are able to behave more sustainably because there more options. This can impact individual's behavior and research is needed to examine whether self-evaluation of past behavior could lead to less sustainable behavior. Individuals compare themselves that they have improved over time which in result could lead to satisfaction of behavior with no feelings to change the current behavior. The positive perception could withhold individuals

from changing their behavior, however, this cannot be concluded from this study. Thus, it is interesting to examine the extent of positive perception influencing sustainable behavior.

Moreover, a more observing method should be used in order to reduce social bias and examine actual behavior. Doing an observational study to examine whether the behavior these participants described indeed reflects their behavior is needed to confirm objectivity of the answers given in this study. Many individuals think that they are sustainable but it crucial to find out whether the current behavior of individuals is in reality sustainable or not. Having a second party examining the behavior gives a more reliable insight into whether individuals are behaving pro-environmentally.

It could be interesting to investigate a sample across different countries. Research should expand on the sample size in order to increase validity. It could look at the difference between different cities since they are some minor difference in social norms and facilities which can impact sustainable behavior. It is important to understand whether there are differences between countries since the topic is a worldwide known issues that are the same for everyone. Transportation was, for example, scored higher because the environment enables individuals to behave sustainable which could be different somewhere else. It could be interesting how this also impacts the general perception of sustainable behavior among millennials because some countries view themselves as very sustainable whereas others do not. The pride of Dutch citizens about their green biking behavior can impact their sustainable behavior compared to countries where cars are still most frequently used. Thus, more researcher regarding the effect of cultural differences on sustainability is needed.

It is important to not only notice that individuals are mostly satisfied but what talking about sustainable behavior can do with their future behavior. It is interesting to know whether individuals will adjust their behavior or keep it the same after reflecting and discussing their behavior. Research should be done months after interviews to examine the influence of assessing own behavior on future sustainable behavior. Having a follow-up study can be insightful to see whether individuals adjust their behavior and examine the aspiration gap which can lead to change (Christensen et al., 2013). Individuals might have the urge to walk their talk and narrow the aspiration gap when individuals feel it is needed to meet their aspirations. It is needed to find out how evaluating own behavior has an impact on their behavior in the long term. Further research is needed to find out how aspiration can incline individuals to behave more sustainable in the future.

5.6 Conclusion

The aim of this study is to gain insights into the intention-behavior gap and identify the possible dissonance reduction strategies. It can be concluded that the inclusion of cognitive dissonance theory in the TPB is needed to explore the discrepancy between good intention and actual behavior. Millennials are in general positive about their own behaviors regarding sustainability. Several models explain sustainable behavior, but there are several strategies millennials use to cope with the intention-behavior gap resulting in failure to act. Millennials cope with the cognitive dissonance that is occurring by altering beliefs instead of behavior. It can be concluded that individuals do not feel an intention-behavior gap since they used various dissonance reduction strategies in different domains to reach consonance. These strategies can vary in different domains since millennials value different aspects when buying food as compared to paying energy bills. However, these strategies can be divided into different clusters showing different dissonance reduction mechanisms that are used which are supporting current literature. It is suggested that a new mechanism is being used which is validating own behavior. It can be concluded that millennials use denial of control, validating own behavior, denial of importance, and denial of accountability as dissonance reduction strategies. By using these strategies millennials do not feel a discrepancy between their intention and behavior. The findings of this research can benefit future research exploring the dissonance reduction strategies regarding sustainability.

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Appendices

Appendix A - Interview questions

Introduction interview

Duurzaamheid is een veelbesproken onderwerp. Om een goed beeld te krijgen over duurzaamheid onder jongeren doe ik onderzoek door middel van interviews met 20 jongeren. Dit interview is 1 van de 20 die wordt gehouden om te onderzoeken hoe jongeren tegen duurzaamheid aan kijken en wat zij doen. Ik laat je in dit interview zo uitgebreid mogelijk vertellen over dit onderwerp.

In dit interview wil ik het hebben over je dagelijkse gewoontes met betrekking tot duurzaamheid op verschillende aspecten. Ik ben benieuwd naar hoe je tegen duurzaamheid aan kijkt en ben op zoek naar concrete voorbeelden.

Om straks alle interviews goed te analyseren, zou dit interview graag willen opnemen. Ik ga het interview uitwerken en alle informatie wordt alleen gebruikt om te analyseren. Na het verwerken van de informatie worden de opnames verwijderd. Ik ben de enige die naar deze opname gaat luisteren. Bent je daarmee akkoord?

Hierbij wil ik voordat we beginnen vragen is of alles duidelijk is en of ik toestemming heb om dit interview op te nemen voor onderzoeksdoeleinde. Je kan op elk moment van dit onderzoek stoppen en alle informatie wordt anoniem verwerkt. Er zijn geen goede of foute antwoorden in dit interview. Ik wil zo goed mogelijk weten hoe je tegen duurzaamheid aan kijkt.

Ik zou eerst een paar achtergrond willen vragen. Voor mezelf (geslacht en vriend of niet)

Introductie vragen

Wat is je leeftijd?

Woon je op jezelf of bij je ouders?

Volg je op dit moment een opleiding? Zo ja, welke studie? Zo nee, wat is je laatst genoten studie?

Goed om te horen. Laten we dan maar beginnen met duurzaamheid over het algemeen.

Zelfreflectie

Wat versta je onder duurzaamheid?

Welk rapport cijfer op een schaal van 1 tot 10 zou je jezelf geven op gebied van duurzaamheid in het algemeen?

We hebben een aantal deel aspecten: Vakantie, Vervoer (In het dagelijks leven), Afval, Energie (verbruik) en Voedsel/producten (jij als consument).

Welk rapport cijfer op een schaal van 1 tot 10 zou je jezelf geven op de volgende aspecten: Vakantie, vervoer, afval, energie, voedsel/producten.

Noteert de cijfers in de chat.

Nu gaan we alle verschillende cijfers bespreken. Het zal helpen als je daarbij specifiek bent en concrete voorbeelden geeft.

Duurzaamheid algemeen

Ik zie dat je jezelf een (cijfer) hebt gegeven voor duurzaamheid in het algemeen. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Vakantie

Ik zie dat je jezelf een (cijfer) hebt gegeven voor vakantie. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Vervoer

Ik zie dat je jezelf een (cijfer) hebt gegeven voor vervoer. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Afval

Ik zie dat je jezelf een (cijfer) hebt gegeven voor afval. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Energie

Ik zie dat je jezelf een (cijfer) hebt gegeven voor energie. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Voedsel/producten

Ik zie dat je jezelf een (cijfer) hebt gegeven voor voedsel/producten. Kun je mij vertellen waarom je dit cijfer aan jezelf geeft?

Kun je misschien voorbeeld geven?

Hoe tevreden bent met dit cijfer?

Waarom wel en waarom niet?

Waarom heb je jezelf niet hoger of lager gegeven?

Einde

We hebben nu alle aspecten besproken

Valt er wat op bij als je kijkt naar de cijfers? Waarom denk je dat er een verschil?

In hoeverre vind je dat je gedrag overeenkomt met hoe je tegen duurzaamheid aankijkt? Waarom?

Ben je na het bespreken van de volgende deelaspecten tevreden over je totaal cijfer voor duurzaamheid? Waarom wel en waarom niet?

Zou je je totaal cijfer voor duurzaamheid na het bespreken van de deel aspecten nog willen aanpassen?

Heb je nog iets toe te voegen of iets kwijt?

Hartstikke bedankt voor je eerlijke antwoorden!

Ik wilde nog vragen of je toevallig een persoon kent die ik niet ken die mij kunnen helpen met een interview. Het zal mij heel erg helpen aangezien en hoop dus zo een beter cijfer te kunnen krijgen.

Appendix B – Codebook

Table 14

Demographics

Code name	Description	Example
1. Demographics 1.1 Age 1.2 Gender 1.3 Education 1.4 Living situation	1. Demographics Sample	

Table 15

Meaning Sustainability

Code name	Description	Example
2. Meaning Sustainability 2.1 Preserving 2.2 Scarcity of resources 2.3 Future 2.4 Collective 2.5 Reusing 2.6 Awareness environment 2.7 Extending usage 2.8 Aware of consequences 2.9 Less impact	2.1 Beschrijft het behouden van de planeet. 2.2 Beschrijft schaarste en minder gebruik van materiaal. 2.3 Beschrijft de toekomst of toekomstige generatie. 2.4 Beschrijft dat iedereen duurzaam moet zijn en iets collectiefs is. 2.5 Het hergebruiken van spullen/materialen. 2.6 Het bewust zijn van het milieu. 2.7 Het langer doorgaan en meekunnen van producten/materialen. 2.8 Het bewust zijn van je acties. 2.9 Beschrijft zo min mogelijk impact maken of minder belastend.	2.1 Het is eigenlijk wel belangrijk als we door willen gaan op deze wereld. 2.2 Want de grondstoffen op deze planeet zijn zeg maar gelimiteerd. 2.3 Omdat de volgende generatie daar dan dat dan moet oplossen. 2.4 Dat iedereen daaraan een handje mee helpt. 2.5 Mogelijk gebruik maken van materiaal dat gerecycled kan worden. 2.6 Onder duurzaamheid versta ik dat je rekening houdt met het milieu. 2.7 Dat je lang door kunt gaan met dingen. 2.8 Dat je bewust bent van je consequenties. 2.9 Extra stappen die men neemt om juist meer euh hun uitstoot te verminderen.

Table 16

Sustainable behavior

Code name	Description	Example
3. Sustainability in general 3.1 Category of Pro-environmental behavior 3.1.1 Supportive behavior (Positive) 3.1.2 Active behavior (Positive) 3.1.3 Lifestyle behavior (Positive) 3.1.4 Supportive behavior (Negative) 3.1.5 Active behavior (Negative) 3.1.6 Lifestyle behavior (Negative)	3.1 Hoe gedraagt participant zich en is zijn gedrag dan duurzaam of niet duurzaam. 3.1.1 Nadruk ligt op korte termijn en vergt weinig actie zoals het steunen duurzame organisaties en financieel ondersteunen. 3.1.2 Acties die worden gedaan zonder enige expliciete reden of gedachte dat duurzaam is. 3.1.3 Duurzaam gedragen komt door zich te gedragen naar een aantal principes of waardes zoals vrijheid, comfort, dieren welzijn etc. 3.1.4 Het steunen bepaalde onduurzame partijen. 3.1.5 Acties die worden gedaan zonder enige expliciete reden of gedachte dat niet duurzaam is. 3.1.6 Onduurzaam gedragen komt door zich te gedragen naar een aantal principes of waardes zoals vrijheid, comfort, dieren welzijn etc of geeft een reden aan.	3.1.1 3.2.2 Als ik de kamer uit ga doe ik deur achter me dicht en ik doe de lampen uit. 3.1.3 Ik douch kort, maar dat komt omdat ik dat zelf fijn vind. 3.1.4 3.1.5 Ik ga nog steeds met het vliegtuig als ik op vakantie wil. 3.1.6 Ik altijd al moeite heb gehad met euh mijn gewicht op peil houden en vlees is gewoon een makkelijke manier om gewoon goede stoffen.

Table 17

Sentiment

Code name	Description	Example
3.2 Sentiment 3.2.1 Dissatisfied 3.2.2 Somewhat dissatisfied 3.2.3 Neutral 3.2.4 Somewhat satisfied 3.2.5 Satisfied	3.2 Hoe de deelnemer zich voelt. 3.2.1 Deelnemer voelt zich ontevreden over het cijfer. 3.2.2 Deelnemer voelt zich een beetje ontevreden over het cijfer. 3.2.3 Deelnemer is niet tevreden maar ook niet ontevreden. 3.2.4 Deelnemer is een beetje tevreden. 3.2.5 Deelnemer is heel erg tevreden.	3.2 3.2.1 Totaal niet eigenlijk. 3.2.2 Nou nog niet zo tevreden. 3.2.3 Ik ben neutraal. 3.2.4 Opzich wel redelijk te vreden. 3.2.5 Ja erg tevreden.

Table 18

Dissonance reduction stratgies

Code name	Description	Example
3.3 Reduction Strategy 3.3.1 Convenience 3.3.2 Financial 3.3.3 Blaming others/Responsibility 3.3.4 Comparison 3.3.5 Enjoyment 3.3.6 Negligible impact 3.3.7 Compensation 3.3.8 Playing down 3.3.9 Normal usage 3.3.10 Facilities/no alternatives 3.3.11 Information 3.3.12 Not aware	3.3. Dissonantie reductie strategieën waarom deelnemers zich onduurzaam gedragen. 3.3.1 Deelnemer geeft aan gemak of ongemak of comfort. 3.3.2 Deelnemer geeft financiële aspecten. 3.3.3 Deelnemer vindt dat bedrijven en andere de verantwoordelijkheid hebben of geeft andere de schuld of betrekt andere	3.3.1 Het is gewoon een heel stuk makkelijker om met een vliegtuig te gaan. 3.3.2 De prijs zou mij dan te veel zijn. 3.3.3 Mijn vrienden en huisgenoten doen dat ook niet. 3.3.4 Ik denk dat ik duurzamer leef dan de gemiddelde nederlander. 3.3.5 Het in mijn optiek een soort opoffering die je maakt voor de evaring.

3.3.13 Habit 3.3.14 Social environment 3.3.15 Effort 3.3.16 Time 3.3.17 No improvements 3.3.18 Fair contribution	3.3.4 Deelnemer vergelijkt zichzelf met andere die het slechter doen. 3.3.5 Deelnemer geeft expliciet aan dat hij van het leven wil genieten.	
	3.3.6 Deelnemer geeft aan dat zijn gedrag toch geen invloed heeft op het milieu 3.3.7 Geeft aan de die het op andere aspecten wel goed doet. 3.3.8 Deelnemer bagatelliseert en zegt dat wat hij of zij doet niet zo erg is of praat het goed of geeft aan dat het niet zo belangrijk is. 3.3.9 Ik verbruik niet zoveel of ben gewoon normaal in mijn gedrag en niet extreem. 3.3.10 Deelnemer geeft aan dat er geen mogelijkheden zijn om wel duurzaam te gedragen of geeft aan dat het noodzaak is. 3.3.11 Geeft aan dat degene niet genoeg weet of informatie heeft. 3.3.12 Geeft aan dat die er niet over nadenkt of niet bij stilstaat of niet bewust is of niet de mentaliteit heeft. 3.3.13 Geeft aan dat het een gewoonte is. 3.3.14 Geeft aan dat de omgeving waarin degene leeft ervoor zorgt dat die het niet doet. 3.3.15 Het kost te veel moeite of heeft te veel impact om leven of lastig is	3.3.6 Je eigen keuzes hebben absoluut gezien of ja over het algemeen gezien een hele kleine invloed hebben. 3.3.7 Maar je gaat dat ook tegen over jezelf afwegen van oh maar ik ben altijd heel voorzichtig met plastic zakjes die gebruik is nooit. 3.3.8 In mijn ogen valt dat nog best mee. 3.3.9 Ik leef vrij normaal qua verbruik. 3.3.10 Ik wil het wel graag maar ik heb niet altijd de mogelijkheden daarvoor of Anders zou het gewoon niet kunnen, ik kan moeilijk fietsend naar thuis thuis toe zeg maar. 3.3.11 Je natuurlijk je eigen keuzes euh absoluut gezien of ja over het algemeen gezien een hele kleine ivnloed hebben. 3.3.12 Ik denk dat ik soms gewoon vergeet of niet op let of niet aan denk. 3.3.13 Ik ben gewoon heel lang bezig met mijn haar zeg maar. 3.3.14 Nou ik denk dat je vooral omdat zo snel in zo’n studentenhuis krijgt is dat je

	of eerste stap zetten of geeft aan lui of laks te zijn. 3.3.16 Het kost te veel tijd of is tijdrovend ik het wel doe. 3.3.17 Ik zie geen verbeterpunten of ik het kan nooit 100% alles goed doen. 3.3.18 Beschrijft dat die het al goed doet en doet wat die moet doen of ik draag bij of best doet of bewust is of ik ben niet slecht bezig.	gewoon wat luier bent en wat lakser daarin bent ofzo. 3.3.15 Ik denk niet dat ik mijn hele leven moet omgooien puur omdat iets duurzaam is of dat je gewoon wat luier bent en wat lakser daarin bent ofzo. 3.3.16 Nee ik denk dat het vooral tijd is. 3.3.17 Het kan natuurlijk altijd nog beter. Maar ja ik denk, je kunt ook niet altijd alles perfect doen. 3.3.18 Ik doe opzich alles zoals het hoor' of omdat ik zeg maar van mezelf weet dat het euhm dat ik wel bewust ben.

Table 19

Explanation of different behavior in different domains

Code Name	Description	Example
9. Reflection 9.1 Difference between domains 9.1.1 Effort 9.1.2 Other priorities 9.1.3 Interest 9.1.4 Financial 9.1.5 Convenience of use 9.1.6 Awareness 9.1.7 More impact 9.1.8 No other option	9.1.1 Beschrijft dat de ene makkelijk gaat en minder moeite kost. 9.1.2 Hecht waardes aan iets anders dan duurzaamheid zoals comfort, plezier etc. 9.1.3 Interesses liggen in verschillende domeinen. 9.1.4 Geeft aan dat geld een belangrijke rol speelt. 9.1.5 Geeft aan op zoek te zijn naar gemak in het dagelijkse leven. 9.1.6 Bewust van acties en bewust van consequenties. 9.1.7 De ene actie heeft meer invloed en het is	9.1.1 Maar als je bijvoorbeeld van niet scheiden naar wel scheiden gaat dat is een minder groter stap in mijn ogen. 9.1.2 Dieren zeg maar op de wereld en euh dat zij gewoon een beter leven hebben. 9.1.3 Ik vind koken ook heel leuk dus ik ben sowieso al meer bezig met eten. 9.1.4 9.1.5 Bijvoorbeeld vervoer zoek ik naar zo efficient mogelijk enzo en zo makkelijk mogelijk.

	mogelijk om meer impact te maken. 9.1.8 Beschrijft dat het niet anders niet anders kan en dat sommige dingen noodzaak zijn.	9.1.6 Ik ben daar gewoon veel meer bewuster mee bezig. 9.1.7 Afval en energie dat is toch wel een dagelijks ding en dat zou denk ik dan het meest uitmaken. 9.1.8 Dat ik de trein pak ofzo weet je wel omdat ik denk van ja ik moet nou eenmaal de trein pakken ik kan niet anders zeg maar.

Table 20

Intention-behavior gap

Code name	Description	Example
9.2 Intention-behavior 9.2.1 Gap 9.2.2 Somewhat in line 9.2.3 In line	9.2 9.2.1 Deelnemer geeft aan dat er een gat is tussen hoe hij tegen duurzaamheid aankijkt en zijn gedrag. 9.2.2 Deelnemer geeft aan dat het redelijk overeenkomt. 9.2.3 Deelnemer geeft aan dat het overeenkomt.	9.2 9.2.1 Ik denk dat mijn gedrag daar niet echt euh overeenkomt. 9.2.2 Ik denk dat dat nog wel redelijk overeenkomt. 9.2.3 Eumh precies.

Table 21

Changing scores

Code name	Description	Example
9.3 Adjusting scores 9.3.1 Lower 9.3.2 Same 9.3.3 Higher	9.3 9.3.1 Deelnemer past het cijfer aan naar lager. 9.3.2 Deelnemer past het cijfer niet aan. 9.3.3 Deelnemer past het cijfer aan naar hoger.	9.3 9.3.1 Die 5 had misschien een 3 of een 4 moeten. 9.3.2 Nee nee, ik denk dat ik vrij goed zat bij het euh beoordelen daarvan. 9.3.3 Ja dan zou ik er eeen 7 van willen maken.

Appendix C - Frequency dissonance reduction strategies

Table 22

Overview frequency dissonance reduction strategies

Dissonance reduction strategies	Description	Sustainability general	Holiday	Transport	Waste	Energy	Consumption	Total
Convenience	Refers to the convenience of an act	11	5	13	8	7	6	50
Financial	Refers to the costs in terms of money	7	7	8	2	8	12	44
Time	Refers to the extra time it costs	5	3	9	4	1	1	23
Enjoyment	Refers to enjoyment of life	9	13	2	2	4	13	43
Blaming others/Responsibility	Refers to shifting responsibility to others than self	6	2	2	0	0	1	11
Comparison	Refers to the comparison with other people	8	8	4	0	5	5	30
Social environment	Refers to the environment/ people that causes unsustainable behavior	7	2	3	5	6	7	30
Negligible impact	Refers to the minimal impact their act has on the environment	5	3	3	3	4	3	21
Habit	Refers to automatic behaviors	5	1	0	1	6	3	16

Facilities/no alternatives	Refers to the limited options	11	13	12	9	7	4	56
Information	Refers to knowledge that is needed	4	2	0	3	1	4	14
Not aware	Refers to being aware/thinking about sustainability	13	5	0	5	9	11	43
Effort	Refers to how much effort a certain act costs	9	2	3	10	5	1	30
Compensation	Refers to compensation of sustainable behavior	1	6	1	0	1	0	9
Playing down	Refers to participants playing down the harm	3	14	7	1	4	2	31
Normal usage	Refers to the average amount of consumption	4	13	4	2	7	3	33
No improvements	Refers to seeing no options to improve themselves	1	2	6	6	2	1	18
Fair contribution	Refers to the perception of doing something well regarding sustainability	17	12	12	16	11	12	80
Total		126	113	89	77	88	89	

Appendix D - Cohen's kappa

Table 23

Cohen's kappa meaning sustainability

Code	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	-
2.1	1	0	0	0	0	0	0	0	0	0
2.2	0	0	0	0	0	0	0	0	0	0
2.3	0	0	0	0	0	0	0	0	0	1
2.4	0	0	0	0	0	0	0	0	0	0
2.5	0	0	0	0	0	0	0	0	0	0
2.6	0	0	0	0	0	1	0	0	0	0
2.7	0	0	0	0	0	0	1	0	0	0
2.8	0	0	0	0	0	0	0	1	0	0
2.9	0	0	0	0	0	0	0	0	1	0
-	0	0	0	0	0	0	0	0	0	0

Note. Cohen's kappa=0.81. The strength of the agreement is 'very good'.

Table 24

Cohen's kappa sustainable behavior

Code	1.1	1.2	1.3	1.4	1.5	1.6	-
1.1	0	0	0	0	0	0	0
1.2	1	12	2	0	0	0	0
1.3	0	0	10	0	0	0	0
1.4	0	0	0	0	0	0	0
1.5	0	1	0	0	2	0	2
1.6	0	0	0	0	0	5	0
-	0	0	0	0	0	0	0

Note. Cohen's kappa=0.76. The strength of the agreement is 'very good'.

Table 25

Cohen's kappa sentiment

Code	2.1	2.2	2.3	2.4	2.5	-
2.1	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.3	0	0	0	0	0	1
2.4	0	0	1	6	0	0
2.5	0	0	0	0	4	0
-	0	0	0	0	0	0

Note. Cohen's kappa=0.72. The strength of the agreement is 'very good'.

Table 26

Cohen's kappa dissonance reduction strategies

Code	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.17	3.18	-
3.1	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0
3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.8	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
3.9	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1
3.10	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
3.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.12	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1
3.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
3.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	1
3.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
3.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
3.18	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	2
-	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Note. Cohen's kappa=0.75. The strength of the agreement is 'very good'.

Table 27

Cohen's kappa reflection

Code	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	9.10	9.11	9.12	9.13	9.14	-
9.1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
9.6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
9.11	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
9.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9.14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. Cohen's kappa= 0.63. The strength of the agreement is 'very good'.

Appendix E - Search log

Source	Term	Hits	Date	Note
Scopus	Cognitive dissonance sustainability	37	02-03	Good quality not too broad, but specific results.
Google scholar	Cognitive dissonance sustainability	33,700	03-03	Too much noises of articles that most of the time do not fit.
Scopus	Intention behavior gap sustainability	75	06-03	Literature that provides insights into the intention-behavior gap and gives a good range of variety.
Scopus	Theory of Planned Behavior Sustainability	10.537	10-03	Too broad and too much of variety of research.
Scopus	Green OR Sustainable and intention behavior gap	143	12-03	Gives a bit more variety and quality literature and a broader view of what sustainability is.
Scopus	Green OR sustainable or ecological and	166	13-03	Gives even more insights and variety, but it gets a bit too noisy and distraction.

	intention behavior gap			
MDPI	Intention behavior gap	1	15-03	Too specific and narrowed down, which is resulting in a narrow view.
Scopus	Cognitive dissonance pro-environmental behavior	14	04-04	Good, but too specific to find valuable literature.
Scopus	Dissonance reduction strategies	59	04-04	Good addition to the cognitive dissonance theory and gained more insights into the cognitive dissonance theory.

Appendix F - Ethical approval

8. COMMENTS

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9. CONCLUSION

Status: Approved by commission

The ethical committee has assessed the ethical aspects of your research project. On the basis of the information you provided, the committee does not have any ethical concerns regarding this research project. It is your responsibility to ensure that the research is carried out in line with the information provided in the application you submitted for ethical review. If you make changes to the proposal that affect the approach to research on humans, you must resubmit the changed project or grant agreement to the ethical committee with these changes highlighted.

Moreover, novel ethical issues may emerge while carrying out your research. It is important that you re-consider and discuss the ethical aspects and implications of your research regularly, and that you proceed as a responsible scientist.

Finally, your research is subject to regulations such as the EU General Data Protection Regulation (GDPR), the Code of Conduct for the use of personal data in Scientific Research by VSNU (the Association of Universities in the Netherlands), further codes of conduct that are applicable in your field, and the obligation to report a security incident (data breach or otherwise) at the UT.

Appendix G - Data collection

Data collected such as transcripts and SPSS files are available at the secretary of the communication department.