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The Role of Emotion & Hard Facts“

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1 INTRODUCTION

In today's modern society consumerism is most likely reaching its peak. The ongoing unleashed consumption threatens the earth's eco system and, besides the impact on flora and fauna, may worsen living conditions for the generations to come.

Luckily, a growing number of people has begun to switch this consumption pattern, taking the impact on the environment into account when buying products or services in the hope to lessen or even prevent irreversible harm. Being green is trendy. Being eco-friendly sells. Marketers are aware of that and often try to make brand images greener. An association between product and sustainability as well as resource saving procedures is being created (Naderer et al. 2017).

Nonetheless, many companies use these green advertising methods to mislead consumers and to pretend they are green or at least greener than they actually are. This kind of fraudulent green advertising is called green washing (Delmas et al. 2011).

The aim of this study is to analyze how likely it is that consumers detect greenwashing. The degree of detection likeliness is measured. Different stimuli are being used to adequately conclude in which condition greenwashing is detected more/less easily.

A major part of this study will focus on the interaction between emotion and cognition which is a pretty hot topic in cognitive neuroscience. Against earlier times' assumptions, affective and cognitive processes may be more interrelated than previously assumed (Parguel 2015, Pessoa et al. 2005, Pessoa 2008). Nowadays, emotions play an important role in marketing and there is much research regarding affective versus rational advertisement practices (Vakratsas et al. 1999). In this study, the impact of predominantly affective and/or cognitive elements on the detection of greenwashing will be analyzed.

In one stimulus an emotion-laden background image will be shown together with a greenwashing claim, while in another stimulus the claim will be shown

together with a number. In the third stimulus only a greenwashing claim with a neutral background is shown. The control group, namely the forth stimulus, shows a neutral background and no greenwashing claim at all.

The prime interest of this study lies in analyzing if and how emotion as well as the presentation of hard facts (=cognitive cues) play a moderating role. The aim is to analyze if these cues make it harder or easier for consumers to notice the presence of greenwashing. Environmental concern and green knowledge are further analyzed in terms of their influencing effect on greenwashing detection. Further, effects on the brand image and purchase intention will be analyzed.

2 LITERATURE REVIEW

Companies are pushing to promote products and services in a green light (Baum 2012, Segev et al. 2016). The green promotion tactic is very well received among marketers as green products/services are likely to sell better (Naderer et al. 2017, p.107) and often sell at higher prices.

In this condition, “two rivals meet, a good one in the name of green marketing and an evil one called greenwashing, to compete with each other and attempt to gain consumers on their side by using all possible tools they have (Pospíchalová 2012).”

GREEN ADVERTISING & GREENWASHING

Green advertising refers to all commercial messages that paint a picture of the company or product being sustainable or ecological with the aim to convince eco-conscious stakeholders of the green features of the product/service (Leonidou et al. 2011; Grant 2008).

Some companies do in fact care about sustainability and producing/shipping in an eco-friendly way. Those companies correctly inform potential customers about the positive environmental impact harvested if the product is preferred over competing substitutes.

On the contrary, greenwashing is a subgroup of green advertising and can be interpreted as a practice of disinformation (Baum 2012, p.425). Greenwashed ads refer to those green ads that incorrectly promote eco-friendly or sustainable product/service features. Figure 1 serves as overview. The two main subgroups in greenwashing are textual claims and executional greenwashing practices.

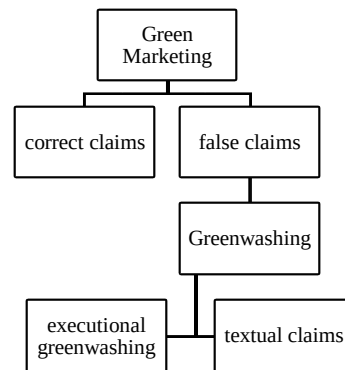


Figure 1: Difference between green marketing & green washing and its types

Greenwashing is an important topic to tackle as consumers increasingly take environmental concerns into consideration when choosing products or services (Naderer et al. 2017, p.107).

In general, this is a very positive development. Unfortunately, as consumers realize that many green advertisements are greenwashed, and the promoted products are not that eco-friendly as assumed, consumers may tend to avoid buying green products in general. Greenwashing, thus, may influence how environmental issues are being addressed and how consumers act (Kilbourne 1995).

As the number of greenwashed ads is increasing (Naderer et al. 2017, p.107, Sheehan et al. 2012), governments shall address this problem, by auditing advertisements and ban the ones, which confuse and mislead consumers by applying greenwashing methods and elements. It is the government's job to think about counter measures.

Referring to , each of the executional greenwashing elements as well as textual claims can further be split into several implementation methods, as extension to the blocks shown in the graphic above.

THE SEVEN SINS OF GREENWASHING

Terrachoice (2010, p.10) summarized the methods and tricks that are most applied in greenwashing. In doing so Terrachoice came up with the seven sins of greenwashing:

- Sin of Hidden Tradeoff
- Sin of No Proof
- Sin of Vagueness
- Sin of Worshipping False Labels
- Sin of Irrelevance
- Sin of Fibbing
- Sin of Lesser of Two Evils

In the following the greenwashing sins are described in more detail, including examples. The examples are annotated to the sin which is dominant. Nevertheless, typically greenwashed ads implement a set of sins.

- Sin of Hidden Tradeoff

This claim does not look at the big picture. Only few product/service features are presented, while disguising other important environmental issues. E.g. within a book advertisement it is stated that the printing process was CO₂ neutral, but the source of the processed wood is dubious (see Figure 20 in APPENDIX).

- Sin of No Proof

An environmental claim that can only be judged after extensive research. For example, some facial tissues or toilet tissue products point out that it contains certain percentages of post-consumer recycled content without providing evidence (see Figure 21 in APPENDIX).

- Sin of Vagueness

A claim that is broad or unspecific. Its real meaning is likely to be misunderstood. Buzz words like “eco safe,” “eco secure”, “eco preferred”,

“eco-friendly” or “natural” are all meaningless without context or proof. Natural is not necessarily green: Arsenic, uranium and formaldehyde are all naturally occurring, but still poisonous.

In Figure 22, Garnier promotes „complete fairness”, but what does that mean? It is too vague to give a hint on how to interpret that. Further, it is hard to proof.

- Sin of Worshipping False Labels

A product that gives the incorrect impression of third party endorsement, namely adding false labels.

Figure 23 shows the “Rainforest Alliance” label. It is not a false label, but a rather weak one with low requirements (Coffecircle 2018).

- Sin of Irrelevance

A claim that may be true, but that is irrelevant for an eco-conscious buying decision. E.g. sun cream products that highlight that they are “CFC-free” (see Figure 24 in APPENDIX). CFC is destroying the ozone layer and it is forbidden by law.

- Sin of Fibbing

Environmental claims that are pure lies. An example can be given from the fashion industry, when a fur coat producer claims, that buying the product is directly promoting nature. Another example is the case of Tyson Foods in 2010, when the chicken giant claimed, that all Tyson chickens were raised without antibiotics. They were sued for this outright lie (see Figure 25 in APPENDIX).

- Sin of Lesser of Two Evils

A claim that may be true within the product category, but if the product category as such is not eco-friendly the claim may just distract consumers from the greater environmental impact (e.g. fuel-efficient sports car, 100% organic tobacco, Exxon supporting the raising of 100sqm forest, green pesticides) (see Figure 26 in APPENDIX). This sin makes consumers “feel green” about a product category that is as such not “green” at all.

The sin of the lesser of two evils and the sin of hidden tradeoff are similar. The difference lies in the fact that the latter one can occur in a product category that is not due to its nature environmentally hazardous as such, but the product advertisement tries to hide bad features and in turn highlights good ones. The sin of lesser of two evils is applied in industries, which as such cannot be considered as sustainable, e.g. tobacco industry, car industry, petroleum or nuclear energy industry.

The sins of greenwashing (Terrachoice, 2010) mainly refer to the subgroup of textual claims. In practice, these sins may be enforced by adding emotional elements.

Importantly, most greenwashed advertisements show more than just one sin.



Figure 2: Fiji water green campaign (Clyde J., 2016)

E.g. the Fiji water advertisement above incorporates several sins, namely

- the hidden trade off sin – as the advertisement claims to reduce carbon dioxide emission and protecting the rainforest, while not mentioning many other negative effects of bottling water (resource waste, emissions, ...);
- the sin of no proof - as the reduction in CO2 emission is hard to judge;
- the sin of vagueness – referring to the statement “every drop is green”;

- the sin of lesser of two evils – as Fiji water may be greener than competitor products, but bottled water as such cannot be environmentally friendly
- and the sin of worshipping false labels – as the green drop within the white circle may be perceived as a label.

The most applied sin is the sin of ambiguous or vague claims (51.7%) according to a content analyses conducted by Bauer (2012). Terms, like “environmentally friendly”, “resource saving” are too broad to be verified by consumers (Carlson et al. 1993). The second most used greenwashing practice is to omit important information (34.4%) – sin of hidden tradeoff - followed by unfounded claims (30%) – sin of no proof. Another study by Segev et al. (2016) suggest, that 15% of 617 analyzed advertisements presented a logo (sin of worshipping false labels) of which 67.7% were illegitimate. The presentation of false labels is often hard to detect by consumers as form of greenwashing. Nevertheless, to help foster true labels, already in the 1980`s ISO 14024 was established to refer to best practice for eco-labeling. In Figure 3 the named statistics are illustrated graphically.

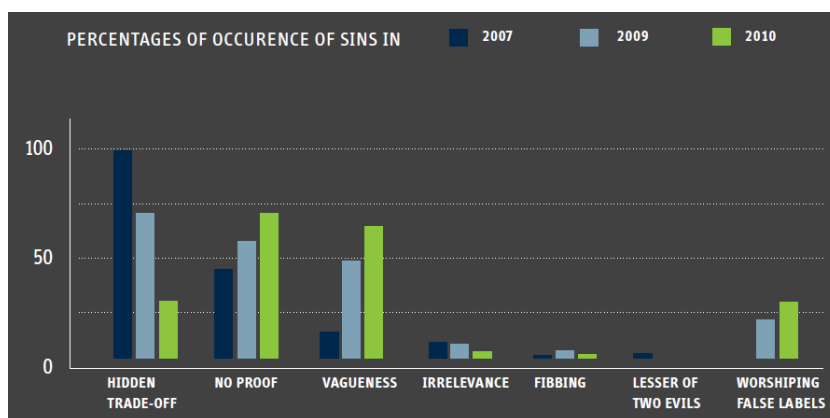


Figure 3: Percentage of Occurrence of Sins (Terrachoice 2010, p.16)

Knowing the above techniques helps to identify greenwashing. Due to the difficulty for consumers to detect greenwashing, companies like applying those sins taking away market share from competitors, among them truly eco-friendly sustainably acting ones. Terrachoice` latest greenwashing report was conducted in 2010 visiting 24 shops and testing the same brands, same locations and same shop sizes as in previous years for comparison reasons.

When analyzing the greenwashing situation, Terrachoice (2010, p.18) divided product categories into mature greenwashed products - like building/construction, dye, office, cleaning and tissue categories - and immature ones - like home and family products, toys and consumer electronics. Especially the latter is on the rise in terms of greenwashing, where marketers illustrate a prettified impression of the energy efficiency, toxicity of components and packaging-related benefits such as recycled content and biodegradability.

Comparing the figures with the ones measured in 2009, an total increase in green product offerings of 73% was analyzed. Among the sample, the product categories which applied green marketing most, were the categories office products, houseware, building and construction, as well as baby care. The proportion of sin-free products doubled to 4.5% in 2010 (Terrachoice 2010, p.6). Consecutively, more than 95% (Terrachoice, 2010, p.16) of all green marketing ads were faithful of using at least one of the sins of greenwashing. Enforcing that percentage, Baum (2012) also came up with a rather high percentage of 75% within another study.

EXECUTIONAL GREENWASHING

Greenwashing is nothing new. Already in the mid-1980s Chevron started a greenwashing campaign titled "People Do", in which Chevron employees were shown protecting wildlife (bears, butterflies, ...).

Nowadays, the primary goal of green ads is "to make the consumers feel good about themselves when choosing a green product or service (Naderer et al. 2017, p.108)". This leads to a low level of factual green claims and an increase in emotional cues (Naderer et al. 2017, p.108; Segev et al. 2016).

Following this trend, this study focuses on emotional cues assumingly influencing greenwash detection. The study of Parguel (2015) serves as basis, wherein the term executional greenwashing is introduced.

Besides the pure factual greenwashing claims, the usage of emotion-laden pictures may defer cognitive processes in a way that when inducing positive

emotions, it may distract from negative features of the advertised product, thus making greenwashing more effective. This method is called executional greenwashing. For example, it is a much-used practice in the car industry to advertise a hybrid car as having a good impact on the environment, showing impressive pictures of the “eco-friendly” car in the middle of nowhere. The emotion-laden pictures may distract from the fact that a hybrid car still uses e.g. diesel, when electric power is low, and, thus, can never be totally green.

Executional greenwashing is the practice to include a so-called nature-evoking element in an advertisement and set this element in association with the promoted product or service. Study results suggest that not only non-experts but also experts are prone to being misled more easily when executional greenwashing is present (Parguel et al. 2015).

NATURE EXPERIENCES

Parguel et al. (2015) suggest that the simple presence of such nature-evoking elements within executional greenwashing may make greenwashing detection more difficult.

Within the purely affective marketing model theory more details are explained.

Green et al. (2000) draw parallels between viewing nature images in advertisements and people reading a narrative. They suggest that in both cases people may experience the same feelings and emotions which they would feel as if the scenary was real. Positive or negative affective responses can follow. Pictures with suitable scenarios can induce such vivid “nature experiences”.

Apart from greenwashing, the power of emotion-laden elements within ads have been successfully applied in other marketing fields for some decades already. Maslow’s hierarchy of needs (Maslow et al. 1970) serves as good guideline for marketers regarding which type of images or scenes may raise special attention and effect consumer perception and evaluation in a favorable way, activating the cognition-emotion interplay.

AFFECTIVE VERSUS RATIONAL ADVERTISING

When looking at marketing campaigns, some work with predominantly rational elements, presenting pure facts and figures, whereas others focus on emotion-laden elements. Which type functions better is hard to tell as there are many influencing factors, most dominant of which may be the individuality of humans. Besides, Drolet et al. (2007) investigated e.g. how the product category type (hedonic vs. utilitarian) impacts the effect of affective versus rational ads depending on the age of consumers. As result, elderly consumers (age 65 plus) showed more favorable attitudes toward affective ads regardless of the product type. Young adult consumers (age 18–25) preferred affective advertisements only for hedonic products, whereas favoring rational ads for utilitarian products.

I suggest that such a strict differentiation between rational versus affective ads is not adequate as emotion and cognition rather go hand in hand with each other. How shall one advertisement be exclusively emotional or rational? Such a harsh classification may not describe well enough how the brain works.

Understanding how emotion and cognition interact and how the brain works is integral for this study. It helps in understanding how the presence of an emotion-laden background image (executional greenwashing) or the presence of hard facts within a greenwashed advertisement may play a moderating role in the detection of greenwashing (= central ELM route).

EMOTION & COGNITION

Cognition

Cognition is often described, in opposition to emotion, referring to the rational thinking process, involving many highly sophisticated functions which may set humans apart from all other species (Pessoa 2008, p.148). Applying functional MRI (fMRI), studies suggest that many cognitive processes take place in predominantly cortical regions. Especially the prefrontal and parietal cortices play a significant role in cognition, e.g. in the control of attention (Miller et al. 2001, Pessoa et al. 2005, Pessoa 2008, p.150).

To name a few, processes such as language generation, calculation, perception, memory, attention and mental imagery to support learning, judgement and evaluation are referred as cognitive processes (Eysenck et al. 2000, Kahneman 2011). Working memory can just process a limited number of information (Scammon 1977). The process in which humans organize and interpret sensory information and that induces enough attention to be perceived is also a cognitive one. The human senses detect thousands of signals, but only the ones who attract attention over a certain threshold are perceived by the human brain. Without such a preselection mechanism, humans as well as animals would perpetually face an information overload (Scammon 1977; Groome et al. 2016).

How humans perceive signals is related to how they were raised, which opinions and experiences they made, the context and goal of an action. In this regard the so-called central executive within the working memory (having two slavery systems) can link long term and short-term memory (Baddeley 1992). Via the process of perception humans give objects and events a meaning.

The concept of schemata/mental models plays a major role (Brewer 2003, Sternberg 2016). Schemata help humans to identify the meaning of sensory inputs. When viewing a bird e.g. humans know that it is a bird as it matches their mental model of a bird, having two legs, two wings, feathers and a beak. This holds true for certain gestures, procedures, products, brands and labels, etc. Having mental models on hand reduces the cognitive workload of the working memory (Baddeley 1992, Brewer 2003, Sternberg 2016). Green

marketing as well as greenwashing tries to form and influence mental models to add positive eco-friendly associations of the promoted product or service.

Already one of the first marketing models, namely the AIDA (attention, interest, desire, action) model by Elmo Lewis (1898) introduced the importance of cognition (as well as emotion) within effective persuasion/marketing. “Attention, Interest, Desire, Action” that’s what the abbreviation stands for. According to the model, without cognitive processes like “paying attention” no marketing message can come across. Further personal involvement and relevance is decisive, as well as to induce a desire. More details will be discussed within the emotion section. Triggering emotion and cognition effectively will induce the desired action.

COGNITIVE CUES IN MARKETING

Without going into more detail, in this study it shall be analyzed what factors hinder consumers from differentiating between truly green marketing advertisements and greenwashed ads.

Research regarding affective versus rational advertisements in marketing research is dense, but mostly inconclusive. When specifically addressing the topic of greenwashing much less research has been conducted so far. The impact of fact presentation in greenwashed ads is rather untouched from research so far. This study shall contribute to the academic field in providing evidence how the presence of hard facts, to be more precise, how numbers – not accounting for differences if numbers are true or faked - influence the consumer's detection of greenwashing.

It shall be manifested here, that the term “hard fact” in this paper does refer to numbers or statements about product attributes in general, irrelevant if the information is true or faked. In contrary to the fact definition within the political study paper in which Kuklinski et al. (1998) define a fact as “an item of correct information, one that accurately represents the real world (Kuklinski et al. 1998, p.147)”, in this paper also fictional, faked numbers are subsumed by the term.

Regarding the impact of including facts as information in political campaigns, Kuklinski et al. (1998) analyzed that people more likely relied on prior knowledge (even if the “known” facts were wrong) rather than trusting the numbers shown in the political campaign. This finding suggests that the inclusion of numbers and other hard facts within advertisements may not be that powerful in persuading people or distracting from unpleasant facts e.g.

In this study the effect of including faked or true numbers will be studied. In reference to Kuklinski et al. 's paper and their statements regarding the influence of experience, it is worth mentioning, that the brands shown in this study's stimulus are unknown to the study participants. This has the implication that they do not have a priori attitudes toward the brands shown. No other prior hard facts may be memorized for the advertised brands. Nevertheless, study participants with extended “green knowledge” may refer presented hard facts to memorized hard facts from other sources. If this remembered number deviates substantially from the shown number in the stimulus, the cognitive cue may not have such a high impact as expected on e.g. mantling the greenwashing detection likelihood.

As another academic work in the field of cognitive cue impact on human perception or judging, Wojcieszak et al. (2017) analyzed whether narrative versus statistical evidence was more effective in promoting openness to Western European norms among different subgroups of Muslim immigrants. Their finding seems to be depending on the cultural background of the message receiver. While Dutch-born were more likely to change attitude towards the topic by getting exposed to narrative cues, the ones born in Muslim countries were more influenced by statistical messages. “This pattern is consistent with the cultural orientation theory, according to which those socialized in largely individualistic contexts may more easily connect with messages featuring the ups and downs of concrete individuals, who overcome their struggles. Those brought up in collectivistic Muslim countries, by contrast, may be more responsive to information about larger collectives. (Wojcieszak et al. 2017, p. 595).” The relevance of context is highlighted by their study.

Summarizing, Kuklinski et al. (1998) highlight the impact of experience on the effectiveness of cognitive cues, while Wojcieszak et al. (2017) highlight the influence of cultural background.

In this study it shall be tested, if the pure presence of numbers, makes ads more trustworthy. The inclusion of hard facts may disguise greenwashing presence, leading to the first hypothesis.

H1: The presence of hard facts within a greenwashed advertisement moderates the impact of the greenwashing cue on the consumer's recognition of greenwashing.

Further, the effects of cognitive cues on buying decisions and attitude towards the brand shall be tested (Yalch et al. 1984). The terms price sensitivity and purchase intention are being defined.

A high price sensitivity means that consumers will quickly stop buying a product even when just a very small rise in price is performed. If consumers have low price sensitivity they will keep loyal and continue buying the product even though its price increased harshly. Typically, luxury high involvement products have a lower price sensitivity than everyday fast-moving consumer goods. In the present case, the advertised products are low involvement products of everyday use. Therefore, it is assumed that a small price increase may lead to consumers buying substitute products quickly. Interesting is, if this effect can be deferred when emotional or cognitive cues are present.

The term purchase intention is rather self-explaining. It describes the likeliness of a consumer to buy the advertised product. He/She has a high intention/plans to buy the product on offer (Paul et al. 2012).

This leads to the following hypotheses were the moderating factor (Hayes 2013) of cognitive cues is being analyzed with reference to a change in brand image or purchase intention.

H3: The presence of hard facts within a greenwashed advertisement improves the brand image versus a greenwashed advertisement without hard facts.

H4: The presence of hard facts within a greenwashed advertisement enhances the purchase intention versus a greenwashed advertisement without hard facts.

Emotion

Beside the impact of cognitive cues, the effect of emotional cues on the greenwashing detection likeliness shall be analyzed. First, the term emotion is clarified and major concepts are presented.

“Whereas there is a relative agreement of what constitutes cognition, the same cannot be said about emotion. (...) Brain structures linked to emotion are often subcortical, such as the amygdala, ventral striatum and hypothalamus. These structures are often considered evolutionary conserved, or ‘primitive’ (Pessoa 2008, p. 148)”. The brain structures associated with emotions mostly work fast and are, thus, associated with intuitive, uncontrolled processing of sensual inputs. Based on this, an individual may not be aware of the stimulus which triggered the affective brain region to respond (Pessoa 2005, Öhman 2002).

Simply degrading emotions to represent primitive processing patterns and associating cognition with highly sophisticating processing mechanisms may be too easy. To better define what emotions are a broader picture shall be presented.

There are several theories of emotion. Among the most famous ones is the categorial approach (Ekman 1992, Plutchik 1980). Supporting researches define emotions as composition of a limited number of basic emotions. Within his discrete emotion theories, Ekman (1992) defines six basic emotions, namely

- enjoyment
- surprise
- anger
- fear
- sadness and
- disgust.

He suggests that these basic emotions share nine characteristics. Each of the six basic emotions compile a family of related affective states, forming an emotion family (Ekman 1992, p. 172). Members of an emotion family share

related characteristics, as similar physiological reactions, similar expressions and the type of trigger event.

Scherer (2005, p.707) calls those basic emotions modular emotions and categorizes them into the class of utilitarian emotions, referring to those emotion types which appear most, and which are highly relevant for survival and peer to peer communication. Utilitarian emotions are of high intensity and induce emergency reactions, involving a high coordination of affected subsystems. The second category are the so-called aesthetic emotions. The significance to immediately react to a trigger event is absent or much less pronounced. Aesthetic emotions can be e.g. triggered by art, like music producing physiological and behavioral changes, like becoming goose bumps, but are not affecting behavioral readiness nor inducing specific adaptive reactions (Scherer 2005, p.707).

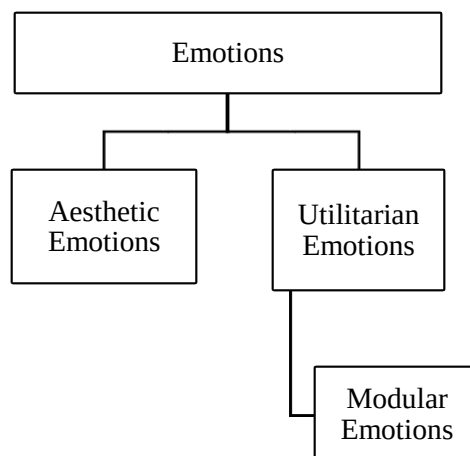


Figure 4: Emotion Types (Scherer 2005)

Scherer came up with another famous theory of emotion (opposing the categorial approach from Ekman), namely the Geneva Emotion Wheel (GEW), which is an extension of the circumplex model from Russel (1980, Posner et al. 2005). The circumplex model is the second very famous model beside the categorial model from Ekman (1992).

Russel came up with a dimensional model to categorize different emotions according to their valence, if it is a positive or negative emotion, and their level

of arousal/excitement. It serves as alternative concept different from the categorial approach introduced earlier.

Within its extension, the GEW, affective states are shown and categorized within a two-dimensional space according to the classification parameters level of control (y axis) and valence (positive or negative) (x axis). The model differs from Russel's model in the second variable: whereas both models include valence as variable, Russel uses the grade of excitement/arousal as second factor, where Scherer uses control as second parameter.

Figure 5 shows the GEW model. Pride e.g. is a positive emotion over which the human has high control. A low control emotion would contrarily be surprise e.g. Obviously, one can hardly influence the state of surprise.

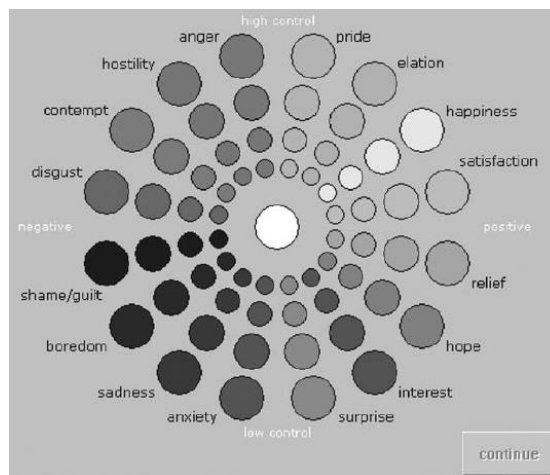


Figure 5: Geneva Emotion Wheel (Scherer 2005, p.723)

Apart, there are some other extensions of the circumplex model, among them the one from Watson et al. (1999). The circumplex model from Russel and all its named modifications are based on the belief that emotions are bipolar: that humans are either sad or happy, etc.

This bipolarity is challenged by Bagozzi, Wong and Yi (1999b) who suggest that bipolarity, independence of pleasant and unpleasant emotions as well as concomitance depend on gender, the target of one's emotions and culture. Whereas American women are raised in a rather dichotomic culture, Chinese find themselves in a more dialogical one, which was reflected in Bagozzi et al.'s study (1999b). American women's positive and negative emotions were quite independent, whereas when looking at Chinese women a positive

correlation was detected. Unipolar scales could serve as alternative, where emotions can be expressed by the intensity e.g. rather than via a strict bipolarity (Bagozzi et al. 1999a, p.191).

One important topic that needs to be tackled when talking about emotions is that emotions have a very unique and specific way how they arise (Bagozzi et al. 1999a, p.185). Bagozzi suggests, that rudimentarily explained emotions have a specific referent, namely the landscape as background picture in the stimulus material of this study. This referent may trigger an emotional reaction and may influence the way consumers` think. Going more into detail, he claims emotions to arise in response to an appraisal instead of directly to a referent. The referent object just induces an appraisal one makes in response to something which is of personal importance. "It is important to stress that although categories of events or physical circumstances are frequently associated with particular emotional responses, it is not the specific event or physical circumstances that produce the emotion but rather the unique psychological appraisal made by the person evaluating and interpreting (...). Appraisals can be deliberate, purposive and conscious, but also unreflective, automatic and unconscious, depending on the person and eliciting conditions for emotional arousal (Bagozzi 1999a, p.185) ". Beside Bagozzi, there are many other appraisal theories manifesting the importance of appraisal in the formation of emotions.

Following appraisal theorists, as Bagozzi (1999a), Lazarus (1982) or Roseman (1991), cognition comes before emotion as they suggest that the determinant of every emotion is not an event per se, but the critical evaluation of the actual state with a desired state.

Cognitive processes are believed to influence when and which emotions are triggered. For Lazarus (1982 & 1991) and Smith et al. (1990) goal relevance and goal congruence are most relevant. Different people experience emotions differently and also react differently to same events, Roseman (1991) tries to specify which appraisal patterns induce which emotion. He came up with a pattern of five appraisals which variously combined determine 16 unique emotions. These five appraisals are: motivational state, situational state,

probability of outcome, legitimacy of the outcome and agency, meaning if the outcome is self-induced or by another person (Roseman 1991, p. 899).

		Present Reward	Absent Punishment	Absent Reward	Present Punishment	
Circumstance-Caused	Uncertain	Hope		Fear		Deserve Negative
	Certain	Joy	Relief	Sorrow	Distress	
	Uncertain	Hope		Frustration		Deserve Positive
	Certain	Joy	Relief			
Other-Caused	Uncertain	Liking		Dislike		Deserve Negative
	Certain			Anger		Deserve Positive
	Uncertain					
	Certain					
Self-Caused	Uncertain	Guilt				Deserve Negative
	Certain	Pride				Deserve Positive
	Uncertain					
	Certain					

Figure 1. Appraisal patterns hypothesized to elicit particular emotions according to Roseman (1979).

Figure 6: Appraisal Patterns (Roseman 1991, p.900)

The importance of appraisal and trigger events on emotions is one of the key determinants what sets emotions apart from other forms of affect.

Emotion, after all, is a subgroup of affects. Affect serves as umbrella term for a subset of more specific mental processes/affective states, like emotions, moods, attitudes (Bagozzi et al. 1999a, p.184), feelings, affect dispositions and interpersonal stances.

Moods are longer lasting (hours up to some days) and not as intense as emotions. In difference to emotions moods are not intentional, meaning moods don't have a referent or object (Bagozzi et al. 1999a, p.184f., Frijda 2000).

Attitudes are evaluated judgements and have two components: affective and cognitive (Bagozzi et al. 1999a, p.185). Scherer (2005, p. 703), following many psychologists, mentions a third component on top, namely the behavioral component. Attitudes in his eyes are relatively stable beliefs and predispositions towards certain objects or persons, being independent of trigger events or current needs or goals in a situation (Scherer 2005, p. 703). Scherer proposes e.g. to define love as interpersonal attitude with a strong positive affect component rather than an emotion.

Further a differentiation between feelings and emotions shall be made. According to Scherer (2005, p.699,712), feelings are a subjective emotional experience component, reflecting an experience unique to an individual. It induces mental or behavioral changes as answer to certain events.

Affect dispositions refer to many of the stable personality traits, like being anxious, nervous, vulnerable, and so on. All those traits have a strong affective core (Scherer 2005, p.705). Anxious persons are more prone to panic quickly e.g. But such personality traits can also be moods or emotions, depending on the existence of a trigger events and the intensity and duration. Thus it is important to define, if the personality disposition is meant or an episodic state (moods, emotions).

Scherer (2005, p.705), further, highlights the difference between emotions and interpersonal stances. Those color interpersonal exchanges. E.g. to certain persons one may speak politer than to others. These interpersonal stances are triggered by an event (being in a certain situation encountering a certain person e.g.) and shaped by affect disposition, personal traits, interpersonal attitudes and strategic intentions.

Emotions, in difference to all other affects, have an automatic appraisal and are short-termed with a rapid onset. They are elicited by a certain event and are intense (Ekman 1992, p.169, Scherer 2005, p.700) in terms of physiological reactions, facial expression and subjective feeling.

COMPONENT PROCESS MODEL

Within his component process model framework, Scherer (2005 & 2009) describes emotions as being episodic. As appraisal theorist Scherer assumes that emotion is an episodic process based on an individual's subjective appraisal of significant events. It is important to understand that emotions follow a dynamic structure according to Scherer. Emotions are elicited along several appraisal dimensions.

The relevant dimensions defined by Scherer (2005) are:

- novelty/expectancy

- (intrinsic) pleasantness
- goal/need relevance
- agency
- coping potential
- compatibility with standards
- certainty/incidence probability
- goal congruency

Test anxiety serves as good example. The test needs to be passed (relevance), but the individual does not know what will be asked exactly (novelty). The test taker does not feel comfortable about it (pleasantness) and is not sure if he/she can pass or not. This leads to anxiety.

The Geneva Appraisal Questionnaire (GAQ) is a suitable tool for measuring emotions in situation like the one above or in usability studies and within media effectiveness research. The named GAQ is based on Scherer's component process model. The tool covers questions which analyze the appraisal dimensions as suggested in Scherer's component process model (Geneva Emotion Research Group 2003, Version 3.0).

Scherer (2004) further suggests within his model, that cognition is not separate from emotion, but interrelated. He includes a cognitive information processing component within an emotion episode. Cognitive processes influence when and which emotions are experienced. Scherer goes into more detail, stating that the emotion eliciting stimulus events induce a cognitive process (appraisal). Especially, internal events are emotion elicitors. These internal events can be sudden neuroendocrine or physiological changes, but also arising memories. These imagined representations can generate strong emotions (Goldie 2004, Parkinson 2004 and Scherer 2004). This paper is in favor of such an interrelated view of cognition and emotion and the close interaction between both.

In this study, it shall be tested how affective elements may or may not hinder consumers to detect greenwashing. As a mood is not evoked by a special object – like an background image - in this case emotion is the affect type on hand. The assumingly deferring effect of emotion-laden images on the evaluation ability of greenwashed ads shall be analyzed.

H2: The presence of an emotion-laden background image moderates the impact of the greenwashing cue on the consumer's recognition of greenwashing.

Interaction between Emotion & Cognition

Brain anatomy and organization may evoke the belief that emotion and cognition work separately. Especially in earlier times the view was dominant, that several brain regions were divided up into affective and cognitive brain regions. This conceptualization in either “affective” or “cognitive” is a harsh simplification and problematic (Pessoa 2008) as discussed earlier.

In Figure 7 one can determine the connectivity of several brain regions. The highly interrelated regions form clusters, featured in different colors. Pessoa (2008) suggests that the amygdala (central position) may be a strong candidate for integrating cognitive and affective information. In the figure cortical regions are shown, except of amygdala and hippocampus as subcortical structures.

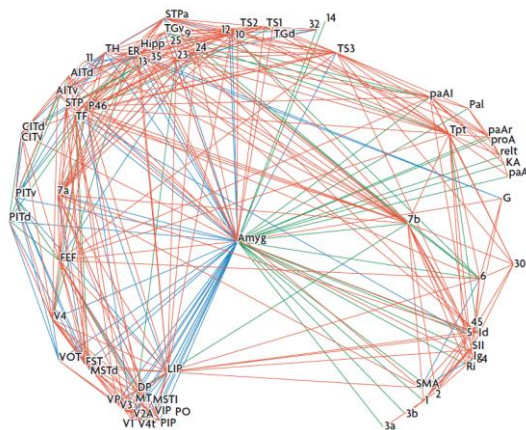


Figure 7: Brain Connectivity Graph (Pessoa 2008, p.152)

Driven by the structure of the brain and the difficulty to measure emotion in isolation a network theory of emotions, the so-called Papez circuit (Papez 1937) was established, which was advanced by MacLean (1949) and is now known under the term limbic system. However, although the limbic system is widely used as term today, it does not foster an adequate understanding of the emotional brain (Pessoa 2008, p.148). For sure, there are brain areas which are predominantly triggered in affective processes, nevertheless none of them shall be defined as purely affective. Figure 8 shows the set of brain regions which are referred as core (red) and extended (brown) emotional regions. The ones typically linked to emotions are predominantly subcortical, like amygdala, ventral striatum, nucleus accumbens and hypothalamus. Both

the amygdala as well as the orbitofrontal cortex have strong ties to the visual sensory area (Pessoa 2008, p.152). In the evaluation of sensory inputs, it is often integral to decide how to act given a certain internal status and situation. Further, also the LPFC (lateral prefrontal cortex) can be presented as an example for a brain region where emotion and cognition interact, given that the PFC (prefrontal cortex) is predominantly viewed as purely cognitive area. Behavior inhibition as well as memory processes are annotated to be cognitive processes, dominantly processed in the (L)PFC. Nevertheless, depending on the valence of spoken words, the response inhibition differed (Goldstein et al. 2007), being a sign for the emotional influence.

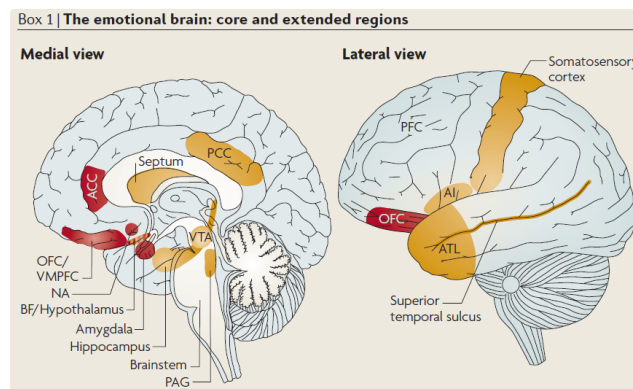


Figure 8: Emotional brain regions (Pessoa 2008, p.149)

After hard discussions, in the last decades some alignment has been reached in terms of the symbiotic relation between cognitive and affective processes (Bagozzi et al. 1999a, Bush et al. 2000, Ochsner et al. 2005, Pessoa 2008).

Pessoa suggests that “complex cognitive-emotional behaviors have their basis in dynamic coalitions of networks of brain areas, none of which should be conceptualized as specifically affective or cognitive. (Pessoa 2008, p.148)”

The amygdala e.g. is involved especially in attention, perception and associative learning (Holland 1999, Phelps 2006, Vuilleumier 2005). Within fMRI studies (Bush et al. 2000) it was shown that viewing emotion-laden visual stimuli led to a rise in attention as the neuronal firing rates in the sensory cortex increased. This is one of the proofs that emotions influence attention levels (Pessoa et al. 2002, Vuilleumier 2005). Moreover, the interplay of emotion and cognition is underlined when looking at the working memory. Maintenance and updating of information is influenced by the valence of a picture, where positive

ones increased the activity and unpleasant ones decreased activity relative to neutral pictures (Pessoa 2008, p.150).

Any behavior should per definition be interpreted as cognitive and affective according to Pessoa (2008). He also delivers a new form of mapping which brain areas serve which functions. Pessoa suggests a many-to-many mapping as shown in Figure 9.

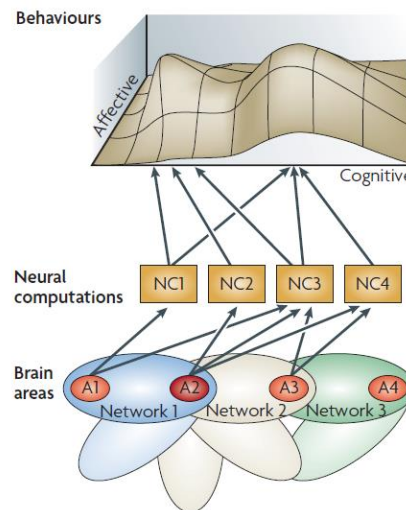


Figure 9: many-to-many mapping (Pessoa 2008, p.154)

One task can call the activation of several brain regions (=pluripotentiality), as well as several brain areas can perform one (similar) task (= degeneracy) (Edelman 2001, Pessoa 2008). Depending on the task several regions are activated, having affective and cognitive components. The connector hubs (red dots) are crucial for the interplay of emotion and cognition.

The power of emotional and cognitive cues is important when talking about persuasion as well as distraction strategies in e.g. greenwashing campaigns.

Scammon (1977) focuses on the limited capacity of the working memory. In her paper she states that the human brain can just deal with a limited amount of information e.g. within an ad. She performed a study of how the displayed information impacted consumer's product evaluation. The displayed information was manipulated in (1) the number of dimensions of information presented and (2) the complexity of the format in which the information was presented. She references to Russo et al. (1975), who suggests that there should be a clear differentiation between information and data. According to

Russo et al. objective, testable facts like e.g. the cognitive cue/percentage numbers are the only real informative elements for consumers. If a display mode becomes too complex it is not useful for consumers. Scammon`s study also identified significant difference of impact depending on the information formats. In case of subjective feelings, percentage numbers showed a positive impact following Scammon`s study (1977, p.154). Consumers felt more satisfied and informed about the product/service when getting exposed to percentage numbers. The percentage number induced familiarity. On contrary, the attributive information, like “healthy, eco-friendly”, made the study participants feel uncomfortable and they also detected discrepancies between expectations and the information presented in the ad. When getting exposed to attributive information study participants were longing for additional information.

The attributive information is better to bring across a message to consumers, as it is easier to decode, but to convey consumers, percentage numbers may be more adequate (Scammon 1977, p. 154f.).

Following Scammon that cognitive cues may be better to convey consumers, also in this study the moderating effect of cognitive and emotional cues shall be tested on brand image and purchase intention. This all has much to do with persuasion.

Marketing models mostly represent models which define how to persuade consumers to do something, e.g. buy a product.

Analyzing different marketing concepts, increases the understanding in how cognition and affect most likely interact in the light of advertising and how to use that findings as marketing specialist.

MARKETING CONCEPTS BASED ON EMOTION, COGNITION AND/OR EXPERIENCE

Findings regarding emotion, cognition and its interaction have been used within different marketing approaches.

Before introducing the several models two universal effects in advertising are introduced. It is recommended to keep them in mind when creating marketing campaigns. In this study the wear in and wear out effect is not in focus, as for this a longer term study would be necessary.

Wear-In Effect of Advertisements

A consumer must view an advertisement a threshold number of times, so that it shows effects (Blair 2000, Pechmann et al. 1988). Unfamiliar ads can induce hostility, maybe closest explained with the psychological concept of xenophobia.

A good solution, especially in low-involvement situations (in which affect, and habits are dominant), is to create an advertisement story, where different versions of an advertisement are shown. Importantly, it shall be evident that they belong together. “Kinder” from the company Ferrero uses this method (see Figure 28 to Figure 31).

Wear-Out Effect of Advertisements

When a consumer has seen an advertising message several times the effect decreases, resulting in the famous inverted u-shape of the advertising response function (Vakratsas et al. 1999, p.31).

Having described these two important universal effects, the different marketing concepts and their effect on humans` behavior shall be introduced.

Throughout the last century when marketing and persuasion techniques as such became relevant, different marketing models have been developed. Some of them argue that persuasion just triggers cognitive processes, other imply that these persuasive information is just triggering emotions. The truth, may as so often, lie in the golden center of the two extremes. In Figure 10 it is

shown that advertising input must have mental effects (attention, memory, ...) before it can eventually manipulate behavior.

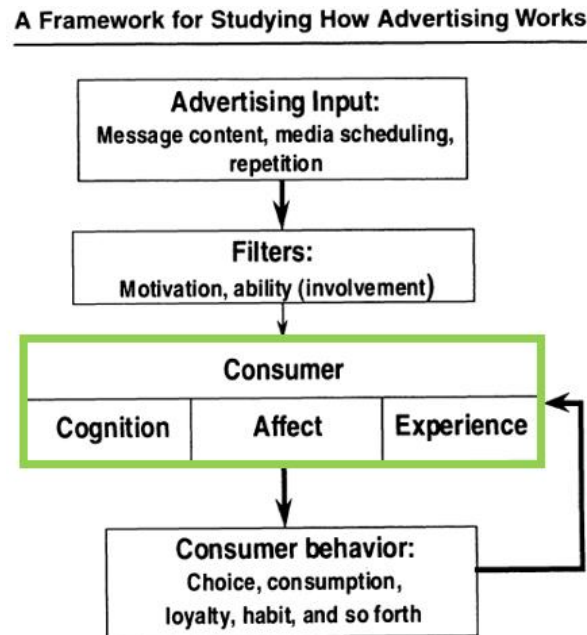


Figure 10: Components influencing the persuasive effects of advertisements (Vakratsas et al. 1999, p.26)

The mediating forces according to the paper of Vakratsas et al. (1999) are cognition, affect and experience. After all, advertisements are not free floating as humans' mind is not a tabula rasa, but stimuli entering the short-term memory are set in relation to memories and mental models (Vakratsas et al. 1999, p.27).

Vakratsas et al. (1999) evaluate different advertisement models, using abbreviations for the mediating factors: [C] for cognition, [E] for memories, [A] for affect. Models span from ones that suggest no intermediating effects like *market response models* to models that account for one intermediating effect ([C] or [A]), followed by models assuming more than one intermediating factor in a special hierarchy. Those models are persuasive hierarchy models, [C][A], or low-involvement hierarchy models, [C][A][E]. Then there are the models that further take experience [E] into account. Other models work with varying hierarchies of effects, like integrative models, [C][A][E], and finally hierarchy-free models. The following overview summarizes the work of Vakratsas et al. (1999).

[C] or [A] models: one influencing factor

A supporter of pure *cognitive models* [*C models*] is Nevett (1982) suggesting advertising to be based purely on facts. Within the cognitive model approach it is suggested that advertising is more effective for experience (=credence) products than search products (Hoch and Ha 1986, Nelson 1974, Verma 1980). An example could be when advertising a dentist, showing the percentage of satisfied patients may be a good idea.

On the other side Zajonc (1980) is in favor of predominantly *affective models* [*A models*]. Zajonc (1980) manifests his view by arguing that affective reactions can take place without much cognition, are made with more confidence and above all, made sooner. It shall be mentioned that Zajonc is one of the supporters of the dichotomization of affect and cognition. Nevertheless, he acknowledges that they can influence each other.

Further, researchers classify the affective responses into one type that leads to the formation of an attitude toward the brand and another type that forms attitude toward the advertisement. In the subsequent hypotheses both types will be analyzed.

more than one intermediating factor with hierarchy

[C][A], [A][C], [C][A][E], [C][E][A], [E][C][A], [E][A][C], [A][C][E], [A][E][C].

- *Persuasive Hierarchy Models* [C][A]

One of the first persuasive hierarchy models was AIDA (Lewis 1898), mentioned already above. Such (response hierarchy) models, following the “hard theory of advertising”, show the underlying pattern: cognitive stage → affective stage → behavior stage. Emotion, thus, follows cognition. Experience [E] is not considered. The sequence is cognition [C] followed by affect [A]. The grade of involvement and individual attitude towards an advertisement are the dominant mediating factor here.

To fully understand persuasive hierarchy models the concept of involvement should be discussed shortly.

Involvement

Involvement describes the degree of how much a consumer feels exposed and attached to a service or product (Krugman, 1965 & 1966). Rothschild (1984, p.127) further suggests that involvement is “an unobservable state of motivation, arousal, or interest. It is evoked by a particular stimulus or situation and has drive properties. Its consequences are types of searching, information-seeking and decision making.”

E.g. a person living in Hawaii may not have much interest in buying alpine skis, but rather get euphoric when seeing the latest surf board.

Involvement will be deeply discussed within hypothesis 7 and 8.

ELABORATION LIKELIHOOD MODEL (ELM)

As one of the most famous persuasive hierarchy models the ELM should be described in detail (Cacioppo et al. 1986). It is a good framework to understand how emotional and/or cognitive cues may distract from the awareness of greenwashing presence.

The ELM model suggests that every variable within a stimulus/trigger event can change attitude, behavior and cognitive as well as emotional processes as such. It follows a multipath approach. The ELM takes an either-or perspective measured on the grade of involvement.

The peripheral route is a mostly affect-based process, triggered especially by e.g. peripheral visual cues such as the nature imagery like in this study.

Cacioppo et al. (1986) suggest that predominantly low involved consumers tend to choose the peripheral route, paying attention to executional elements, like in the case of influencer marketing (Hartmann et al. 2009). On the peripheral route primarily, non-fact like variables are taken into consideration. Affect plays a higher role than cognition on the peripheral route as described as well by Vakratsas et al. (1999).

Highly involved consumers may rather choose the central route via attribute evaluation.

One important moderating factor within the ELM and when choosing the path is the individual's knowledge level (Cacioppo et al. 1986).

Another finding by Cacioppo et al. (1986) is that low-involved consumers are influenced in a positive way when being exposed several times to repetitive advertisements. High involved consumers, though, who rely more on facts, show no such effect. They are rather indifferent.

- *Low-Involvement Models*

In opponency to the [C][A] model (= the “hard theory of advertising”), is the “weak theory of advertising”. These alternative models suggest that product trial and experience have an influence on human's behavior. According to these models advertising reinforces behavior rather than inducing it (Vakratsas et al. 1999, p.28). The sequence is [C][E][A]. Cognition comes first as attention is a prerequisite.

more than one intermediating factor without hierarchy

- *Integrative Models*

The sequence is not of the mediating factors [C] [A] and [E] is not fixed. It varies by context, e.g. the level of involvement whether a choice is/was determined affectively or cognitively (before) or e.g. the product category as such.

- *Hierarchy-free Models*

No specified hierarchy can be derived. It is the category that summarizes all models, which have not been introduced so far. It is the smallest and least used model group. According to the hierarchy-free model, advertising is part

of a brand totality, presenting a more person-centered view (King 1975, Lannon 1986 & 1994, Lannon et al. 1983). Vakratsas et al. (1999, p.35). They argument against hierarchy models, as they suggest that cognition, affect and experience work highly interrelated and that, thus, a hierarchical model may not capture the processes within the complex brain well enough. “It would (...) seem likely, that C and A, if they are both engaged at all, are engaged simultaneously and interactively (Vakratsas et al., 1999, p.35)”. It is a pladoyer for hierarchy-free models.

Summarizing, the main finding of Vakratsas et al. paper (1999) is, that cognition, affect and experience can be present in evaluating an advertisement. They do not focus on the hierarchy sequence of these three influencing factors, but rather on the factor`s “individual” importance. The dominance is flexible. Context, thus, needs to be taken more into account.

Experience, Affect & Cognition (EAC)

Depending on product category, the stage in the product life cycle, the individual consumer, the brand, market and other limitation factors, like time, money, knowledge, etc. some intermediate effects are more important than others in the certain situation. Vakratsas et al. (1999) express the importance of context by coming up with a coordinate system, the EAC Space. The EAC features three dimensions, wherein each axis represents one of the three main influencing factors. The coordinates represent the individual strength of each factor in a certain setting regarding an advertising message.

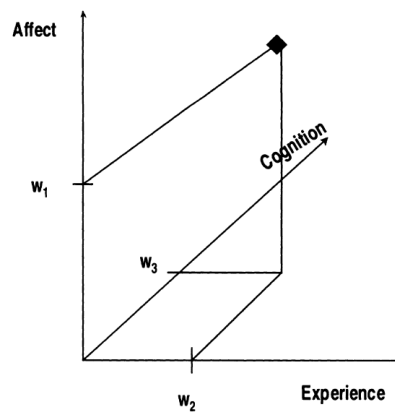


Figure 11: EAC Space (Vakratsas et al. 1999, p.37)

Figure 11 shows the EAC space, with the help of which the individual emphasis of an advertisement campaign can be portrayed.

As already in case of cognitive cues, also the moderating effect of emotional cues shall be tested. As described above by the EAC space, it is hard to tell if cognitive or affective cues show stronger effects.

Applying the “EAC Space” finding to this study, it is assumed that the presentation of a landscape background picture may induce emotional as well as cognitive processes which act in an interplay, following the idea of integrative models. E.g. the picture may call experiences from long time memory which are connected to an earlier experience in a mountain scenery. These imagined representation events may in an ongoing adaptation process induce certain emotions as characteristic for such nature experiences, which themselves again counterinfluence the evaluation and judgement of the shown advertisement and finally the advertised product or/and brand.

The interrelatedness between emotion, cognition and/or experience also affects the formation of brand attitude/image. Studies suggest that brand attitudes are not only based on beliefs about the product`s attributes (cognitive cues), but also on affective elements.

The attitude toward an advertisement moderates brand attitude formation (Aaker et al. 1986, Brown et al. 1992, Burke et al. 1989, Homer 1990, MacKenzie et al. 1989 & 1986, Smith 1993, Vakratsas et al. 1999, p.31). The terms brand attitude and brand image are used as synonymous, as no significant differences between the two could be analyzed by the mean of a literature review.

The influence of emotional cues on brand image are tested in hypothesis 5.

H5: The presence of an emotion-laden background image improves the brand image versus a greenwashed advertisement without executional elements.

There is support from research that positive affect has lasting effects on later decision making (Ashby 1999, Bush et al. 2000). This is relevant for most companies, also the ones applying greenwashing, as it may lead to an increased market share and profit.

Marketing uses all means to reduce price sensitivity and to enhance purchase intention in consumers. Especially in everyday products, like yogurt and bottled water (Wilk 2006) - as used in this study - buying habits are prevalent. Being able to manipulate buying habits in favor of the “own” brand is the aim of every marketing campaign. The impact of emotion-laden images shall, thus, be tested in this regard.

Zebregs et al. suggest that “statistical evidence (quantitative information like showing hard facts) have a stronger influence than narrative evidence (storytelling from the perspective of a stakeholder e.g.) on beliefs and attitude, whereas narrative evidence had a stronger influence on intention (Zebregs et al. 2015, p.282)”. The reason for that may be found in the matching characteristics between the specific evidence type and the outcome variables (Greene et al. 2003; Green et al. 2000, Kopfman et al., 1998). “Statistical evidence, beliefs, and attitude all relate primarily to cognitive responses, whereas both narrative evidence and intention relate more specifically to affective responses (Zebregs et al. 2015, p.282)”.

Baesler et al. (1994), contradicts the findings of Zebregs et al. (2015), suggesting that the narrative evidence is the more powerful one, whereas Allen et al. (1997) enforce the opposite. As shown, there is no consensus about which evidence (affective versus cognitive) has a higher mediating effect than the other in the field of scientific research. This seems to be straight forward as the question if a cognitive or affective cue`s influence is higher, ultimately depends on the consumer itself, the product or service, situational factors and of course, finally, the variable which is impacted, e.g. attitude, purchase action, etc.

A positive relation between emotional cues and brand image, as well as purchase intention is assumed. Some studies suggest that advertising should not be verbally only, as emotional and visual elements enhance preference

(Aaker et al. 1982, Gorn 1982, Healy et al. 1983, Krugman 1977, Resnik et al. 1977, Rossiter et al. 1978, Sawyer 1981, Vakratsas et al. 1999, p.30, Weinberger et al. 1989, Zajonc 1980, Zajonc et al. 1982)

H6: The presence of an emotion-laden background image enhances the purchase intention versus a greenwashed advertisement without executional elements.

GREEN KNOWLEDGE

Taking individual characteristics into account the impact of involvement was investigated. In the present study two involvement indicators were tested, namely green knowledge (hypothesis 7) and environmental concern (hypothesis 8) (Ellen 1994).

The term green knowledge describes objective knowledge about environmental issues (Ellen 1994, Schmuck et al. 2016, p.11).

In this study`s questionnaire participants are asked several green knowledge questions. The participant group subsequently will be divided into two subgroups (highly informed versus poorly informed). It shall be analyzed if the level of green knowledge influences the greenwashing detection likeliness.

According to former studies it is assumed that highly informed consumers will be more critical to the advertising elements and may detect greenwashing earlier (Finisterra do Paço et al. 2012; Shrum et al. 1995, Newell et al. 1998).

As described in the cognition chapter, experts can cope with more information at a time than novices as they have more adequate mental models, etc. This may be one of the reason why experts/highly informed consumers have more capacity for judging and evaluating (Kachersky et al. 2010, Alba et al. 1991) and are, thus, supposedly not that prone to oversee greenwashing.

H7: If consumers are confronted with greenwashing claims, highly informed consumers detect greenwashing more likely than the ones scarce in green knowledge.

ENVIRONMENTAL CONCERN

Besides the green knowledge also green concern (=environmental concern) may play an influencing role in greenwashing detection. Importantly to understand is, that environmentally concerned consumers do not necessarily have high environmental knowledge (Ellen 1994).

Environmental concern refers to consciousness of environmental problems and the felt necessity of conserving the environment (Schwartz et al. 1991, Schmuck et al. 2016, p.10).

In this study`s questionnaire participants are asked several environmental concern questions. The participant group will subsequently be divided into two subgroups (highly versus poorly concerned). It shall be analyzed if the level of green concern influences the greenwashing detection likeliness.

When referring to earlier studies, Finisterra do Paço et al. (2012) suggest that highly concerned participants are more sceptical toward green advertising. In contrast Matthes et al. (2014) observed that the higher the environmental involvement the less the scepticism toward green advertising. This paper shall contribute to the discussion.

H8: If consumers are confronted with greenwashing claims, highly concerned consumers detect greenwashing more likely than poorly concerned ones.

3 METHOD

3.1 STUDY DESIGN

3.1.1 Process & Method

The used method follows an experimental study design. The method is applied, as causal effects can be determined with more confidence than when using any other research method.

This experimental study explored the effects of greenwashing in ads. Consumer`s greenwashing detection likelihood, the brand image based on the stimuli and the purchase intention were analysed. An online questionnaire with four different groups had been developed. The four questionnaire versions solely differed in the stimulus (= two advertisements) to which the participant got exposed to.

A 3-group design with a control group was employed. The wording of the greenwashing claim, the background image (neutral versus emotion-laden), the inclusion or exclusion of a fact - namely a percentage number – as cognitive cue and the inclusion or exclusion of an affective cue - namely an emotion-laden image - was manipulated.

4 conditions were established:

- a control condition, showing no greenwashing claim and neutral background
- a condition with a greenwashing claim and neutral background
- a condition with a greenwashing claim and an emotion-laden background image
- a condition with a greenwashing claim, neutral background and a cognitive cue (= hard fact)

The greenwashing claim of the bottled water was *“Schluck für Schluck für die Natur. Natürlicher Genuss in der umweltfreundlichsten Flasche. “*, possibly

closest translated with „*Sip by sip for nature! Natural delight in the eco-friendliest bottle.*”

The greenwashing claim of the yoghurt was “*Tu der Umwelt was Gutes! Unsere neue ECO-Verpackung!*”, best translated with “*Do something good for the environment! Our latest eco packaging!*”.

STIMULUS

In total eight versions of print ads had been created using the Photoshop/Illustrator software. Eight adverts were included in the online questionnaire frame. Each participant was exposed to two of the eight stimuli.

See Figure 12 to Figure 19 in the appendix for the German version of the materials.

Four versions of a print advertisement for the bottled water were used. Four versions of a print advertisement for the yoghurt were used.

Study participants were inhibited to click “forward” to the next question for a minimum duration of four seconds. The button was blocked, to guarantee that study participants had “enough” exposure time, namely looking at the stimuli material at least for four seconds. The time necessary to process information is, after all, an important factor in the advertising elements` impact (Scammon 1977, p.155).

When designing the stimuli, the adequateness of the advertisement format and exposure time had been considered.

The reason why not just one, but two different products were presented in two separate advertisements was to prevent manipulation. Each participant was, thus, exposed to two advertisements, namely one version of the bottled water advertisement and another versions of the same condition of the yoghurt advertisement. Both ads followed the same formal elements, meaning when a participant had been randomly assigned to the “emotional cue group” in both advertisements a greenwashing claim and an emotion-laden background picture were displayed.

Independently of the group, the two advertisements followed the same “layout”. They just differed in the implementation details of the set “layout”, namely the “non-green”/neutral slogans differed, the greenwashing slogans differed, the emotional cue differed, as well as the cognitive cue.

Study participants were randomly assigned to one of the groups.

The questionnaire as well as the stimulus material was conducted in German language.

The two products which were advertised were yoghurt and mineral water as mentioned above. The reason for picking these products was, that they are low involvement goods. It is important not to mix high and low-involvement products to test the hypothesis in this paper, because when doing so further control groups, looking at the influence of involvement, would need to be included in the study. By intention, this study does not focus on the impact of high versus low involvement products. Yoghurt and mineral water are everyday fast-moving consumer goods. In terms of their characteristics, it is important to acknowledge that such everyday products are often bought based on habits. They typically just call low involvement in consumers.

What is taken into account is rather the involvement of the participant in green products and other green topics, by looking at the environmental concern (= low involvement = affect is dominant) and the green knowledge (= high involved consumer = cognition as dominant factor) as moderating parameters.

Another reason for choosing bottled water and yoghurt has been, that there are greener alternatives available. Both products are packed in plastic and can, thus, not be totally green. Also, tap water is much “greener” than bottled one, assuming the tap water can be consumed, which is the case within Europe, where study participants are located.

For the stimulus two in Europe poorly known brands had been selected as starting point. The mineral water from Mount Franklin is an Australian product and hardly known in Austria or Germany. The same holds true for the brand Skyr, a yoghurt brand from Iceland.

For the study design the fact, that the used brands are unknown to study participants and, thus, perceived like fictitious brands, is very important. By using unknown fictitious brands, influencing factors which otherwise would lead to severe biases of the experimental study are held as low as possible. If a famous brand like Coca Cola would have been selected for the stimulus, the study would possibly have suffered from the a priori formed brand attitude and experiences of the Austrian and German study participants.

CONDITIONS



Figure 12: Control Group Stimulus without Greenwashing_Yoghurt



Figure 13: Control Group Stimulus without Greenwashing_Mineral Water



Figure 14: Greenwashing Group Stimulus_Yoghurt



Figure 15: Greenwashing Group Stimulus_Mineral Water



Figure 16: Cognitive Cue Group Stimulus with Greenwashing_Yoghurt



Figure 17: Cognitive Cue Group Stimulus with Greenwashing_Mineral Water



Figure 18: Emotion Cue Group Stimulus with Greenwashing_Yoghurt



Figure 19: Emotion Cue Group Stimulus with Greenwashing_Mineral Water

In the control condition participants got exposed to conventional advertisements without any greenwashing claims, emotional or cognitive cues. A neutral background was shown, namely a blue background with color gradient (see Figure 12 and Figure 13).

In the greenwashing condition participants got exposed to two greenwashed advertisements with greenwashing claims, but without any emotional or cognitive cues included. A neutral background was shown (see Figure 14 and Figure 15).

In the cognitive cue condition (see Figure 16 and Figure 17) participants were exposed to a greenwashing claim and a percentage number referring to the packaging material of the product. There was a neutral background image.

The percentage number in the stimulus of the bottled water was 25%. It had been claimed that 25% of the packaging material stems from recycled plastic. “Innocent Smoothies” were once advertised with the statement that 25% of the “Innocent” bottle are made from recycled plastic.

In the yoghurt advertisement the cognitive cue “15% less plastic” was being used. The 15% were chosen, as “Nestle” once showed an advertisement of bottled water, in which they claimed a reduction of plastic material of 15%. This, thus, seems to represent a realistic % reduction.

The percentage numbers of the cognitive cues in the two different ads differed on purpose, to exclude the probability e.g. that some participants show personal preferences to certain numbers, as well as to undermine the effect of including cognitive cues irrespective of the exact percentage number.

In the emotional cue condition (Figure 18 and Figure 19) participants got exposed to the greenwashed advertisement of the water and to the greenwashed advertisement of the yoghurt. In the advertisements a greenwashing claim was shown and an emotion-laden background picture, serving as emotional cue. Within the bottled water advertisement, the background image showed a mountain lake, with one bigger mountain and some trees. Within the yoghurt advertisement, the background image showed an alpine pasture, including alpine flowers, with a high peak in the back.

The importance of involvement, as described in the section of persuasive hierarchy models and integrative models further above, is the reason why the background picture showed an alpine setting. Study participants are Austrians and South Germans and, thus, most likely feel attached to such a scenery. In the case of reproducing such a study with e.g. Colombian participants, it is advisable to use e.g. a beach scenery or jungle nature image as emotional cue instead.

PARTICIPANTS

Via a link participants were invited to take part in an online survey. Before starting the questionnaire, participants were asked for their consent to use the data for research purposes and anonymity was granted. Answering the questionnaire took around 8 – 10 minutes.

Participants were randomly assigned to the different conditions. Randomization was successful, and the four groups did not significantly differ in sociodemographic characteristics.

Study participants live in Austria and Germany and are between 13 and 75 years old. The experiment had been conducted as an online-survey in January 2018. 295 respondents ($N = 295$) were randomly assigned to the experiment (age, $M = 34.16$, $SD = 12.888$; gender, 59.7% female; education level, 3.1% compulsory school, 13.2% vocational school with higher education, 24.7% high school graduate, 7.5% college degree, 51.5% university degree) (see Table 3 - Table 9 in APPENDIX).

MEASURES

All items were tested on a 7-point scale (1 = 'strongly disagree' to 7 = 'strongly agree').

In the first part of the questionnaire participant's green knowledge and general attitude towards social topics, environmental topics and green products were questioned, giving hints about the environmental concern. Social questions were included especially for the reason to disguise the exact topic of the study. Participants for whom the study's purpose was completely obvious, would maybe perceive the stimulus different and answer in another manner. Bias was tried to be kept low.

The **environmental concern** (Chang 2011, Kim et al. 2005) was measured with three items on a 7-point-likert scale ($M = 5.75$; $SD = 1.06$), similar to Schuhwerk et al. (1995). Items were averaged to form the environmental concern index (Cronbach $\alpha = 0.733$). Having a Cronbach Alpha α bigger than 0.7 the scale can be classified as reliable (see Table 10 to Table 16 in APPENDIX).

Looking at Table 10, one can see, if the last item would be deleted Cronbach Alpha would even get higher. It should be kept in mind that the more items constitute an index, the more stable it is.

A dummy variable was created, where the low concerned group ($N = 163$, 55.3%) was assigned a 1 and the highly concerned group a 2 ($N = 132$, 44.7%). Higher values represented greater concern (see Table 17 in APPENDIX). The implications it may have on greenwashing detection will be discussed in the result section.

To gauge **green knowledge** seven multiple-choice knowledge questions were asked similar to Mohr et al. (1998) resulting in a count variable with 0 as 'low environmental knowledge' to 7 as 'high environmental knowledge' ($M = 4.55$; $SD = 1.54$) (see Table 18 in APPENDIX).

Answers were either counted as true or false, resulting in binominal measures. The sum of all answers, as defined above, was analyzed resulting in the environmental knowledge sum index (see Figure 32: Questionnaire in APPENDIX). A higher sum represented greater knowledge.

A dummy variable was created, where poorly informed participants were assigned to 1 and highly informed a 2. After using the SPSS function to separate the group into two subgroups by using one separation value, one could face that the two resulting subgroups were rather unbalanced in the number of assigned participants. Manual recoding was performed. Participants, who got four or more questions correct were assigned to the “highly informed” group (N= 160, 54.2%), while all others were classified to the poorly informed group (N= 135, 45.8%) (see Table 20 in APPENDIX). The implications it may have on greenwashing detection will be discussed in the result section.

In the main section, after participants` exposure to the stimulus material they completed associated questions about green buying intention, greenwashing detection, virtual nature experience, utilitarian benefit and their evaluation of the “Skr” and the “Mount Franklin” brand image.

To make sure that participants really looked at the stimulus the “forward” button was just activated after four seconds.

The **green buying behavior** (M= 5.20; SD= 1.15) was measured with six items on a 7-point-likert scale and averaged (Cronbach α = 0.848) (see Table 21 to Table 24 in APPENDIX), similar to Shrum et al. (1995) and Kim et al. (2005).

Of major importance for hypothesis 1, 2, 7 and 8 the **greenwashing detection** (M= 4.61; SD= 1.37) was measured with four items on a 7-point-likert scale and averaged (Cronbach α = 0.822) (see Table 25 to Table 28 in APPENDIX), similar to Chen et al. (2013).

The **virtual nature experience** ($M= 2.89$; $SD= 1.58$) was measured with three items on a 7-point-likert scale and averaged (Cronbach $\alpha= 0.863$) (see Table 29 to Table 32 in APPENDIX), similar to Hartmann et al. (2012).

The **utilitarian benefit** ($M= 2.93$; $SD= 1.38$), meaning the environmental impact the advertised product may bring with it, was measured with six items on a 7-point-likert scale and averaged (Cronbach $\alpha= 0.805$) (see Table 33 to Table 36 in APPENDIX), similar to Hartmann et al. (2012).

The general **evaluation** of both advertisements in terms of if the **advertisements itself** ($M= 4.19$; $SD= 1.18$) were appealing or not, was measured with four items on a 7-point-likert scale and averaged (Cronbach $\alpha= 0.845$) (see Table 37 to Table 40 in APPENDIX). The measurement method was similar to Chang (2011), Matthes et al. (2014) and Schmuck et al. (2017).

Further, **brand images** of both brands were measured each. After getting exposed to the two stimuli the participants were asked about their evaluation of the brand “Skeyr” and “Mount Franklin” in separation.

The specific **evaluation of the “Mount Franklin” brand** ($M= 4.16$; $SD= 1.16$) was measured with four items on a 7-point-likert scale and averaged (Cronbach $\alpha= 0.906$), using the items “(un)attractive”, “(not) sympathetic”, “negative/positive” and “(not) recommended”. The measurement method was similar to Chang (2011), Matthes et al. (2014) and Schmuck et al. (2017). The brand image of “Mount Franklin” was coded as “Water_evaluation index” (see Table 41 to Table 44 in APPENDIX).

The specific **evaluation of the “Skeyr” brand** ($M= 4.59$; $SD= 1.31$) was measured with four items on a 7-point-likert scale and averaged (Cronbach $\alpha= 0.941$), similar to Chang (2011), Matthes et al. (2014) and Schmuck et al.

(2017). The brand image of “Skr” was coded as “Yoghurt_evaluation index” (see Table 45 to Table 48 in APPENDIX).

Finally, the **groups** were recoded into **dummy variables**. The group assigned to stimulus condition 1 was defined as dummy variable “KG”, standing for control group.

The group assigned to stimulus condition 2 was defined as dummy variable “KG_gw”, for the group with “just” the greenwashing claim, but no emotional or cognitive cue.

The group assigned to stimulus condition 3 was defined as dummy variable “gw_bild”, standing for the stimulus with the greenwashing claim and the emotion-laden background image.

The group assigned to stimulus condition 4 was defined as dummy variable “gw_fakt”, standing for the stimulus with the greenwashing claim and the percentage number as cognitive cue.

RANDOMIZATION CHECK

Participants were randomly and equally distributed (22% control, 28% greenwashing only, 23% emotional cue, 27% cognitive cue) to the different groups (see Table 49 to Table 51 in APPENDIX).

For randomization check the group was set as fixed factor and age was set as dependent variable within a univariate variance analysis. The age of participants did not significantly differ over all groups ($F(3, 295) = 0.223$; $p > 0.05$) (see Table 52 in APPENDIX). For education and gender a cross table was derived to check randomization. As result of the Chi-square test, no significant differences in gender ($\chi^2 = 2.478$, $df = 3$, $p > 0.05$) (see Table 53 and Table 54 in APPENDIX) or education ($\chi^2 = 15.233$, $df = 12$, $p > 0.05$) (see and Table 56 in APPENDIX) in the four different groups was detected.

Thus, randomization was successful, and the four groups did not significantly differ in the sociodemographic characteristics gender, education or age.

MANIPULATION CHECK

To check how and if the emotional cue in the emotional cue condition was perceived, as well as the cognitive cue in the cognitive condition, participants were asked to recognize the correct background image they had seen in the stimulus, if any. Within a multiple-choice question different options were given to choose from. For checking the perception of the cognitive cue, participants were asked to recall the exact percentage figures they had seen in the two advertisements, if any (see Figure 32: Questionnaire in APPENDIX).

As result of the crosstab analysis (see Table 57 in APPENDIX) and Chi-square tests it was derived that participants within the cognitive cue group, who were exposed to the percentage number were the ones with the best recall results within the tolerance range of plus minus 5%. Within the water advertisement 69.6% within the cognitive cue group recalled the number right (see Table 58 in APPENDIX), whereas within the yoghurt advertisement (see Table 60 in APPENDIX) 77.2% of the ones exposed to the percentage number recalled the number right.

In the stimulus material itself no other numbers, but the percentage number within the cognitive cue group, appeared (see Figure 16 and Figure 17 in APPENDIX).

The difference in recall quality among all groups was highly significant when getting exposed to the water advertisement ($\chi^2= 175.16$, $df= 3$, $p < 0.001$) (see Table 59 in APPENDIX), as well as to the yoghurt advertisement ($\chi^2= 144.312$, $df= 3$, $p < 0.001$) (see Table 61 in APPENDIX).

Also for the emotional cue it was analyzed that the participants within the emotional cue group, who were exposed to the emotion-laden image, showed favorable recognition results. Within the water advertisement 60.9% within the emotional cue group recognized the mountain lake picture correctly. Within the control group 65.2% and within the pure greenwashing group 60.5% recognized the blue neutral background correctly (see Table 62 in APPENDIX).

Within the yoghurt advertisement 62.3% within the emotional cue group recognized the picture of the alpine meadow with the peak in the back

correctly. Within the control group 81.8% and within the pure greenwashing group 75.3% recognized the color gradient neutral background correctly (see Table 64 in APPENDIX).

In terms of recognition the yoghurt appeared to be the better stimulus material when looking at the percentage of participants recognizing the neutral background in case of being exposed to the control stimulus or pure greenwashing stimulus.

The difference in recognition among all groups was highly significant when getting exposed to the water advertisement ($\chi^2 = 60.984$, $df = 6$, $p < 0.001$) (see Table 63 in APPENDIX), as well as to the yoghurt advertisement ($\chi^2 = 82.149$, $df = 12$, $p < 0.001$) (see Table 65 in APPENDIX).

The manipulation check for the emotional and cognitive cue, therefore, was successful.

Additionally, participants' subjective feelings regarding the emotional notion within the stimulus were questioned with the help of a 7-stage Likert scale ("0 = not emotional", "7 = very emotional"). The same was performed for the cognitive notion ("0 = not evidence-based", "7 = very evidence-based") (see Figure 32: Questionnaire in APPENDIX).

It could be shown that the cognitive cue condition was also perceived as rather cognitive, namely being graded highest in terms of the level of fact based information displayed ($M = 3.87$; $SD = 1.5$) (see Table 66 in APPENDIX).

The difference among all groups was significant ($F(3, 295) = 4.223$; $p < 0.05$) (see Table 67 in APPENDIX).

Between groups, difference was only significant between the emotional cue condition and the cognitive cue condition ($p < 0.05$) (see Table 67 and Table 70 in APPENDIX).

When analyzing the grade of emotion of the stimulus material, the emotional cue condition was perceived as most affective, namely being graded highest in terms of the level of emotion ($M = 4.29$; $SD = 1.8$) (see Table 72 in APPENDIX).

The difference among all groups was significant ($F(3, 295) = 4.404$; $p < 0.05$) (see Table 73 in APPENDIX).

Between groups, difference was marginally significant between the control condition and the emotional cue condition ($p \leq 0.07$). Significant differences were detected between the pure greenwashing condition and the emotional cue condition ($p < 0.05$), as well as between the cognitive cue condition and the emotional cue condition ($p < 0.05$) (see Table 76 in APPENDIX).

DATA ANALYSIS

Univariate one factor and two factor variance analyses/ANOVA were performed, holding the group as fixed factor (= independent factor) in all cases.

To analyze greenwashing detection level of every group a general univariate linear model was applied. The group was set as fixed factor (=independent variable), while the greenwashing detection index was annotated as dependent variable.

When a two factor ANOVA was applied, beside the group also the environmental concern or green knowledge respectively was held as fixed factor. The parameters of interest were used as dependent variables, namely purchase intention, brand image and greenwashing detection.

For hypothesis 1 and 2, as well as 7 and 8 the greenwashing detection level was fixed as dependent variable.

For hypothesis 2 and 5 brand image was fixed as dependent variable.

For hypothesis 3 and 6 purchase intention was fixed as dependent variable.

The green knowledge level and the environmental concern level were dummy coded, splitting the participants in two subgroups per each parameter (poorly versus highly informed and poorly versus highly concerned).

For hypothesis 7 and 8 knowledge level and environmental concern respectively were used as second factors (besides the group as fixed factor).

4 RESULT

4.1 RESULT PRESENTATION

The aim of the study was to find out how greenwashing is detected and how emotional cues and cognitive cues may lead to a different evaluation and perception of greenwashed products. It was assumed that the presence of hard facts or an emotional cue within a greenwashed ad moderates the consumer's recognition of greenwashing.

To analyze the greenwashing detection level of every group a general univariate linear model was applied. The group was set as fixed factor (=independent variable), while the greenwashing detection index was annotated as dependent variable.

To check hypothesis 1 and 2, within an one factor ANOVA it was shown that the group had a significant effect on greenwashing detection ($F(3,295) = 2.917$; $p < 0.05$; $\eta^2 = 0.029$) (see Table 79 in APPENDIX). But when testing differences between the four groups by comparing every group with all others with the help of the post-hoc test Scheffé, only the difference between the control group and the emotional cue group was marginally significant ($p \leq 0.07$) (see Table 79 and Table 82 in APPENDIX).

In general, the average greenwashing detection level was rather high ($M = 4.61$, $SD = 1.37$) (see Table 78 in APPENDIX). Even in the control group with no greenwashing claim, greenwashing was detected ($M = 4.20$; $SD = 1.46$).

Over all groups a significant difference in greenwashing detection was found. Nevertheless only between the control group and the emotional cue group a marginal significant difference was found. Between the other groups no significant changes in greenwashing detection likelihood could be found. Hence, hypotheses 1 and 2 are not supported.

Besides, it was the aim of the study to check the moderating effect of emotional or cognitive cues on brand image leading to hypothesis 3 and 5.

The group was set as fixed factor, while the brand image index was annotated as dependent variable. An univariate ANOVA was performed for the brand image of the water bottle brand “Mount Franklin” and a second time as well for the yoghurt brand Skyr.

Mount Franklin/Water Bottle – Brand Image

The univariate variance analyses showed, that the “Mount Franklin” brand image ($M=4.16$, $SD=1.16$) (see Table 84 and Table 85 in APPENDIX) did not differ significantly over all groups ($F(3,295) = 0.474$; $p > 0.05$; $\eta^2 = 0.005$) (see Table 86 in APPENDIX).

As the difference between the groups in brand image evaluation was not significant, there was no need of performing a post-hoc test, analyzing intergroup differences. Nevertheless, it shall be mentioned that (in case of both brands) brand image was best in the cognitive condition, when including a percentage number (see Table 84 and Table 90 in APPENDIX).

Whether over all groups, nor between each group as logical consequence, significant differences could be found in the Mount Franklin brand image. Thus, emotional cues, cognitive cues and/or greenwashing claims showed no effect on the brand image of the water brand.

Skyr/Yoghurt – Brand Image

The same analysis was performed with the yoghurt brand Skyr ($M= 4.59$, $SD=1.31$) (see Table 90 in APPENDIX).

As result of the one factor ANOVA, no significant differences were detected in the “Skyr” brand image when looking at all groups ($F(3,295) = 0.117$; $p > 0.05$; $\eta^2 = 0.01$) (see Table 92 in APPENDIX).

According to the study findings, the brand image of “Mount Franklin” as well as “Skyr” did not significantly change, neither in the presence of a

**cognitive or emotional cue, nor in the presence of a greenwashing claim.
Hypothesis 3 and 5 are not supported.**

As third dependent variable purchase intention was analyzed, leading to hypothesis 4 and 6.

The group was set as fixed factor (=independent variable) again, while the purchase intention index was annotated as dependent variable. The SPSS analysis, namely a univariate ANOVA, was performed for the purchase intention of the water bottle and a second time as well for the purchase intention of the yoghurt.

water bottle stimulus – purchase intention

As result of the variance analysis no significant differences in purchase intention ($M = 2.69$, $SD = 1.71$) (see Table 96 in APPENDIX) were detected ($F(3,295) = 0.618$; $p > 0.05$; $\eta^2 = 0.006$) (see Table 98 in APPENDIX).

yoghurt stimulus - purchase intention

As manipulation check, the same analysis was performed with the yoghurt advertisement stimuli.

The one factor ANOVA gave the same result as in the water bottle case. Differences in purchase intention ($M = 3.51$, $SD = 1.94$) (see Table 102 in APPENDIX) of the yoghurt over all groups were not significant ($F(3,295) = 0.408$; $p > 0.05$; $\eta^2 = 0.004$) (see Table 104 in APPENDIX).

According to the study findings, neither cognitive or emotional cues, nor the presence of a greenwashing claim showed significant effects on the yoghurt and water bottle purchase intention. Hypothesis 4 and 6 are not supported.

Having refuted hypothesis 1 – 6 so far, now hypothesis 7 shall be checked.

It was studied within hypothesis 7 and 8 who of the participants was susceptible to false environmental claims and who not. It was investigated how the moderators, namely green knowledge and environmental concern, play a role in greenwashing detection.

For analyzing hypothesis 7, a two factor ANOVA with knowledge level (high or low) as first and with group as second fixed factor (=independent variables) was used. The greenwashing detection level was set as dependent variable.

In Table 110 (in APPENDIX) one can study the differences in mean values depending on high or low green knowledge level and the group (=condition). When comparing the greenwashing detection means for high versus low informed participants the biggest gap between the knowledge subgroups could be viewed in the pure greenwashing condition ($M_{\text{highinformed}} = 5.01$; $SD_{\text{highinformed}} = 1.28$; $M_{\text{lowinformed}} = 4.18$; $SD_{\text{lowinformed}} = 1.27$) (see Table 110 in APPENDIX).

In general, highly informed consumers showed constantly higher greenwashing detection levels irrespective of the condition than low informed ones ($M_{\text{highinformed}} = 4.82$; $SD_{\text{highinformed}} = 1.33$; $M_{\text{lowinformed}} = 4.36$; $SD_{\text{lowinformed}} = 1.37$) (see Table 110 in APPENDIX).

The two fixed factors, namely group ($F(3,295) = 2.754$; $p < 0.05$; $\eta^2 = 0.028$) and knowledge level ($F(1,295) = 7.36$ $p < 0.05$; $\eta^2 = 0.025$), thus, had a significant effect on the greenwashing detection likeliness. The interaction effect of group and knowledge level was not significant ($F(3,295) = 1.54$ $p > 0.05$; $\eta^2 = 0.016$) (see Table 112 in APPENDIX).

As result of the post-hoc Scheffe test, only differences between the control group and the emotional cue group were marginally significant ($p \leq 0.07$) (see Table 114 in APPENDIX).

Highly informed consumers: detailed analysis of greenwashing detection levels

To verify the finding about highly informed consumers more details can be viewed for this subgroup within the following figures:

The group of highly informed consumers (N=160) was slightly bigger than the poorly informed subgroup (N=135) (see Table 108 in APPENDIX).

When analyzing highly informed consumer, the differences over all conditions were marginally significant ($F(3,160) = 0.783$; $p \leq 0.07$; $\eta^2 = 0.015$) (see Table 117 in APPENDIX). Between groups no significant differences were detected (see Table 119 in APPENDIX).

How emotional or cognitive cues, as well as the presence or absence of greenwashing claims affects the greenwashing detection likeliness from poorly informed consumers is outlined in the section to come.

Poorly informed consumers: detailed analysis of greenwashing detection levels

In case of low informed consumers significant differences were detected over all groups ($F(3,135) = 3.324$; $p < 0.05$; $\eta^2 = 0.071$) (see Table 122 in APPENDIX).

Poorly informed consumers showed the lowest greenwashing detection level when being exposed to no greenwashing claim ($M = 3.88$, $SD = 1.57$) (see Table 109 in APPENDIX), what makes sense logically. When including the emotional cue ($M = 4.71$, $SD = 1.34$) or the cognitive cue ($M = 4.75$, $SD = 1.12$) a clear rise in the greenwashing detection level could be detected. Nevertheless, only the greenwashing detection rise between the control condition and the cognitive cue condition was identified as marginal significant ($p \leq 0.07$) (see Table 122 and Table 124 in APPENDIX).

Summarizing, **the two fixed factors, namely group ($F(3,295) = 2.754$; $p < 0.05$; $\eta^2 = 0.028$) and knowledge level ($F(1,295) = 7.36$ $p < 0.05$; $\eta^2 = 0.025$) had a significant effect on the greenwashing detection likeliness. The interaction effect of group and knowledge level was not significant ($F(3,295) = 1.54$ $p > 0.05$; $\eta^2 = 0.016$) (see Table 112 in APPENDIX).**

Differences were marginally significant between low and highly informed consumers in the control condition ($F(1,66) = 3.551$; $p \leq 0.07$; $\eta^2 = 0.053$) (see Table 126 in APPENDIX).

In the pure greenwashing group differences were significant between low and highly informed consumers ($F(1,81) = 8.513$; $p < 0.05$; $\eta^2 = 0.097$) (see Table 126 in APPENDIX).

When getting exposed to emotional cues ($F(1,69) = 0.324$; $p > 0.05$; $\eta^2 = 0.005$) (see Table 126 in APPENDIX) and cognitive cues ($F(1,79) = 0.009$; $p > 0.05$; $\eta^2 = 0.000$) (see Table 126 in APPENDIX) no significant differences were detected. Low and high consumers' greenwashing detection levels were approaching each other in these two conditions.

In Table 1 it is graphically shown how greenwashing detection levels differ in terms of knowledge level and group.

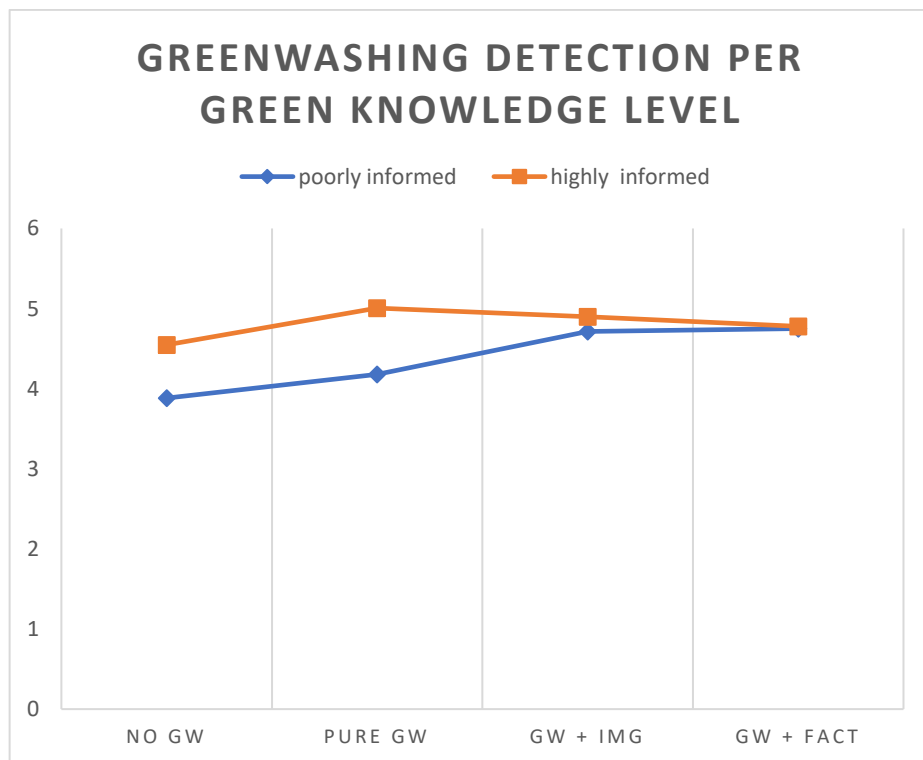


Table 1: Greenwashing Detection in different conditions by knowledge level

There were significant differences among all groups, but when comparing greenwashing detection levels between the two knowledge

levels not between each of the four groups significant differences were detected. Thus, hypothesis 7 can not be supported.

After having analyzed the influence of green knowledge on greenwashing detection likeliness a similar analysis was conducted for testing hypothesis 8 in terms of environmental concern levels. Group and environmental concern served as fixed factors, while greenwashing detection was the dependent variable.

In Table 129 one can study the differences in mean values depending on high or low green concern level within all four conditions. When comparing the greenwashing detection means for poorly ($M = 4.33$, $SD = 1.32$) versus highly concerned participants ($M = 4.96$, $SD = 1.34$) the biggest gap in greenwashing detection between high and low concerned consumers could be viewed in the control condition (see Table 129 in APPENDIX).

The poorly concerned consumers showed the lowest greenwashing detection level in the control condition ($M = 3.56$, $SD = 1.27$), whereas especially when including the emotional cue ($M = 4.72$, $SD = 1.31$) (see Table 129 in APPENDIX) a rise in the greenwashing detection level could be viewed (see Table 141 in APPENDIX).

The fixed factor “group” ($F(3,295) = 3.129$; $p < 0.05$; $\eta^2 = 0.032$) had a significant effect on the greenwashing detection likeliness and the second factor “concern level” ($F(1,295) = 18.609$; $p < 0.001$; $\eta^2 = 0.061$) had a highly significant effect on the greenwashing detection likeliness. The interaction effect of group and knowledge level was not significant ($F(3,295) = 2.189$; $p > 0.05$; $\eta^2 = 0.022$) (see Table 131 in APPENDIX).

To analyze the greenwashing detection level differences, with the environmental concern level as second factor, between the four groups, every group was compared with all others with the help of the Scheffé test. Only the difference between the control group and the emotional cue group was marginally significant ($p \leq 0.07$) (see Table 133 in APPENDIX).

high & low concerned consumers: detailed analysis of greenwashing detection

The group of highly concerned consumers (N=132) was smaller than the low concerned subgroup (N=163) (see Table 137 in APPENDIX).

When analyzing highly concerned consumer, the differences in greenwashing detection ($M = 4.96$, $SD = 1.34$) (see Table 137 in APPENDIX) over all conditions were not significant ($F(3,132) = 0.072$; $p > 0.05$; $\eta^2 = 0.002$) (see Table 141 in APPENDIX).

Whereas, when analyzing low concerned consumer, the differences in greenwashing detection ($M = 4.33$, $SD = 1.32$) (see Table 137 in APPENDIX) over all groups were highly significant ($F(3,163) = 5.931$; $p = 0.001$; $\eta^2 = 0.101$) (see Table 141 in APPENDIX).

By means of the Scheffé test it was proven for low concerned consumers, that there was a significant difference in greenwashing detection between the control group and the emotional cue group ($p < 0.05$). Also, a significant difference in greenwashing detection was measured between the control condition and the cognitive cue group ($p < 0.05$). Further, the difference between the control group and the pure greenwashing group was marginally significant ($p \leq 0.07$) (see Table 142 in APPENDIX).

For highly concerned consumers no significant differences between groups were detected (see Table 142 in APPENDIX). This is also easily derivable from the graphic in Table 2. The constantly high greenwashing detection function with nearly no slope, demonstrates visually the stable greenwashing detection level by highly informed consumers between all groups.

In contrast, for low concerned consumers a steeper slope can be detected between the control group and the emotional cue group within the graph in Table 2. It is a significant difference ($p < 0.05$) (see Table 142 in APPENDIX). Further, also between the control condition and the cognitive cue group a significant difference was analyzed ($p < 0.05$) (see Table 142 in APPENDIX). The difference between the control group and the pure greenwashing group was marginally significant ($p \leq 0.07$) (see Table 142 in APPENDIX).

The fixed factor “group” ($F(3,295) = 3.129$; $p < 0.05$; $\eta^2 = 0.032$) had a significant effect on the greenwashing detection likeliness and the second factor “concern level” ($F(1,295) = 18.609$; $p < 0.001$; $\eta^2 = 0.061$) had a highly significant effect on the greenwashing detection likeliness. The interaction effect of group and knowledge level was not significant ($F(3,295) = 2.189$; $p > 0.05$; $\eta^2 = 0.022$) (see Table 131 in APPENDIX).

In Table 2 one can also compare visually the greenwashing detection levels between high and low concerned consumers in each condition. In the control group differences were highly significant between low and high concerned consumers ($F(1,66) = 17.129$; $p < 0.001$; $\eta^2 = 0.211$) (see Table 145 in APPENDIX).

Differences were significant between low and high concerned consumers in the pure greenwashing condition ($F(1,81) = 4.224$; $p < 0.05$; $\eta^2 = 0.051$) (see Table 145 in APPENDIX).

Like in the case of green knowledge also here, low and high concerned consumers` greenwashing detection is approaching each other in the emotional and cognitive cue condition, showing no significant differences between the two subgroups.

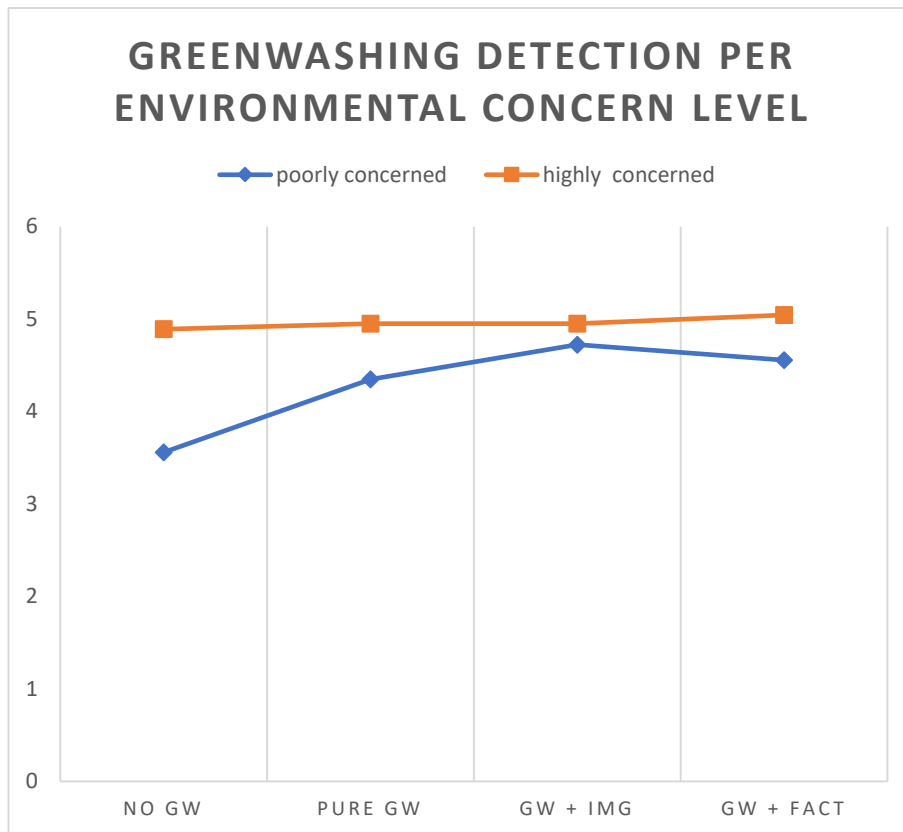


Table 2: Greenwashing Detection per group & environmental concern level

There were significant differences among all groups, but when comparing greenwashing detection levels between the two concern subgroups not between each of the four groups significant differences could be found. Thus, hypothesis 8 can not be supported.

4.2 ADDITIONAL ANALYSIS

Further, study data allowed to analyze how the detection of greenwashing influenced purchase intention and brand image. A correlation analysis was performed. It was shown that purchase intention as well as brand image correlated negatively with the detection of greenwashing.

In detail, the “Mount Franklin” brand image ($r = -0.224$, $p < 0.001$) correlated highly significantly negative with the detection of greenwashing, so did the “Skylar” image ($r = -0.265$, $p < 0.001$). Same holds true for “Mount Franklin” purchase intention ($\text{corr} = -0.265$, $p < 0.001$) and the intention to buy the yoghurt ($r = -0.257$, $p < 0.001$) (see Table 148 in APPENDIX).

4.3 DISCUSSION

Marketers have realized that greenness is trendy, and that coloring products and services green can pay off with an increase in sales figures or premium pricing, etc. (Lyon et al. 2011). Greenwashing is the devil brother of honest green advertisement and may have negative effects on the eco consciousness and behavior of humans. Many familiar Fortune 500 companies engage in greenwashing (Laufer 2003).

The ability of consumers to detect greenwashing may prevent hasty conclusions projected to all types of green products, even the “true green products”.

This study, thus, set out to investigate whether consumers detect greenwashing and how the detection likeliness may be moderated by emotional or cognitive cues as well as green knowledge or environmental concern.

When comparing the four stimuli with each other, the greenwashing detection level among all participants was lowest in the control group. As no greenwashing claim was included in this group the result is logically correct. Interestingly, including the emotion-laden background image led to the biggest rise in greenwashing detection among all participants, even though it was not a significant difference. It seems that participants were more suspicious and unsure about the advertisement when attributive information had been added. This is in line with the findings of Scammon (1977), who suggested that the presence of attributive information made consumers feel uncomfortable and made them detect discrepancies between expectations and the information presented in the advertisement.

This study showed that greenwashing detection differed along all groups, but not between the different conditions. This means that when emotional or cognitive cues and greenwashing claims are present consumers do not have the same greenwashing detection level in all four cases, but contrary to the assumptions made in hypothesis 1 and 2 no significant moderating effects of emotional or cognitive cues could be verified. Hence, hypothesis 1 and 2 were not supported.

Further, the moderating effect of affective as well as cognitive cues on brand image and on purchase intention were measured while only one factor ("group") was set as independent variable.

Scammon (1977, p.154) detected that percentage numbers showed a positive impact in subjective feelings as consumers felt more satisfied and informed about the product/service when getting exposed to percentage numbers. The percentage number induced familiarity and according to Scammon (1977, p. 154f.) may be more adequate to convey consumers, while attributive information is better to bring across a message to consumers, as it is easier to decode. Nevertheless, Scammon presents that "neither the amount nor the format of the information presented to the subjects affected their brand preference/intention-to-buy (Scammon 1977, p. 152)."

Following Zebregs` et al. (2015) a cognitive cue should have had a stronger moderating effect on brand image than an emotional cue, as characteristics of the moderator and the dependent variable, e.g. brand image, were similar.

As in this study both cues did not show significant moderating effects this suggestions could not be supported. No significant differences in brand image among all four conditions, wheter in case of the "Mount Franklin" brand, nor in case of the brand "Skyr" were measured.

Thus, emotional or cognitive cues showed no moderating effect on brand image, not supporting hypothesis 3 and 5.

Zebregs` et al. (2015) further looked at the manipulation of purchase intentions. They argued that emotional cues may show a higher moderating effect on purchase intention than a cognitive cue due to predominantly affective characteristics of purchase intention.

In this study it was analyzed that purchase intention was generally higher for the yoghurt than for the water bottle. Purchase intention for the water bottle was highest in the pure greenwashing group, whereas when looking at Table 102 the highest purchase intention for the yoghurt was in the group with the greenwashing claim and the percentage number.

In the case of the yoghurt stimulus, cognitive cue seemed to have a higher moderating effect on purchase intention opposing Zebregs et al.'s findings (2015). But this analysis is not valid enough, as in the present study whether the yoghurt, nor the water bottle purchase intention did significantly change along all groups. Zebregs et al.'s findings (2015) could, thus, not be tested.

Based on the missing significance, cognitive and emotional cues had no significant moderating effects on purchase intention. Hypothesis 4 and 6 were not supported.

Results regarding the change in greenwashing detection were different to the outcomings of hypothesis 1 and 2, when taking, beside the group factor, also green knowledge into account.

Interestingly, highly informed consumers showed in all conditions rather high and stable greenwashing detection levels. They seemed to be quite suspicious and perceiving greenwashing even in advertisements in which no greenwashing claim had been included. This could be interpreted as one example of the problematic effect of greenwashing, namely by preventing consumers to buy any type of green product, even the honestly green ones due to their anxiety of getting tricked by marketers (Kilbourne 1995).

For only slightly informed consumers the results looked different. Poorly informed consumers altered their greenwashing detection level in the presence of percentage numbers.

Being exposed to a greenwashing claim and a percentage number, thus, had an enforcing effect for low informed consumers helping them to detect greenwashing more easily. The cognitive cue led to more suspicion.

When comparing highly and low informed consumers greenwashing detection level, the biggest difference was examined in the pure greenwashing condition, followed by the control condition. This result is not surprising as highly informed consumers always suspected green products to be greenwashed, while low informed consumers had a more realistic picture in e.g. the control group.

Beside looking at the impact of the extent of green knowledge, it was also checked how participants' environmental concern may play a role. This makes sense, as tackled in the literature review when discussing e.g. the EAC space (Vakratsas et al. 1999) and the importance of context. Keeping the context, e.g. individual or situational differences, in mind is important when analyzing consumers behavior and thinking patterns regarding products and services (Westbrook et al. 1991). „Hence a sole focus on the content of the advertising message may not be sufficient to understand consumers' responses to it (Parguel et al. 2015, p.6).“

Parguel et al. (2015) underlined the importance and moderating power of the consumers' topic knowledge. According to them, highly informed consumers are not influenced that much by executional elements representing nature. „Non-expert“ consumers may be more influenced and as consequence take the peripheral route to persuasion more often, referring to the ELM model.

To test this, different environmental concern levels of participants were analyzed and used as second factor. When looking at the change in greenwashing detection level, it was detected that highly informed as well as highly concerned consumers tended to rate the greenwashing “danger” higher than the less concerned or low informed consumers.

Due to the relatively stable and on average high greenwashing detection level of highly informed or highly concerned consumers, the differences over all groups were not significant.

In contrast, in the case of low concerned or informed consumers differences were highly significant over all groups. Low concerned (as well as low informed) consumers reacted to the greenwashing presence/absence or cognitive/emotional cues with an adapted greenwashing detection level. The transfer-of-affect explanation may serve as one explanation. It suggests “that emotional appeals may work best among the least informed (participants) (...) or those paying the least attention to a persuasive (...) messages (Huddy et al. 2000, p.745).”

While low informed consumers especially reacted with a higher greenwashing detection level when getting exposed to the cognitive cue, low concerned

consumers showed same reactions to cognitive cues, but in excess also reacted to emotional cues with an increase in their greenwashing detection level.

Although, having shown that high and low concerned, as well as high and low informed consumers tend to react differently to emotional or cognitive cues as well as greenwashing claims in terms of their greenwashing detection level – without saying that all differences are significant -, hypothesis 7 and 8 are not supported. There were significant greenwashing detection differences among all groups when taking the knowledge or concern level into account, but not all differences were significant when comparing between groups and green knowledge or concern levels.

4.4 LIMITATIONS

This study has several limitations. Just one product category was investigated, namely fast-moving consumer goods of everyday use.

Further, the study primarily measured short-term advertising effects. There may be differences in the persistence of moderating effects between cognitive versus affective cues. Zebregs et al. (2015, p.287) assume that statistical evidence effects are longer lasting than affective cues. Affective cues are rather temporal as they may diminish faster than the effects of cognitive cues do.

Within future research, the stimuli used in this study could be tested in a longer-term setting, maybe also bringing in the concept of mere exposure, the repetition of the exposure to advertisements.

Study participants could be exposed repetitively to stimuli in a frequency of several weeks to a month. As extension to this study, participants could be, further, questioned about their attitude towards the brand one year later.

When doing so, the study participants would need to get such advertisement stimuli on a regular basis during the one year as just mentioned.

Affects, and especially emotions, are hard to measure (Richins 1997). Better alternative methods to do so are the analysis of biophysical reactions, like facial expression and other parameters like sweating signs, etc. In this study no such parameters have been tested due to resource limitations. The participants were simply asked to express, if they experienced some affective reactions or not. Keeping this in mind, most likely the affective responses may have cognitive bias included.

As extension to this study, one could include parameters checking in which situation participants viewed the advertisements. According to Batra et al. (1986) the characteristics of the situation in which an e.g. advertisement is shown, has influence on which cue is stronger. They suggest that in low-involvement situations, affective responses influence brand attitudes more positively than in high-involvement situations. Future studies could take this into account.

Further research could test if a positive or negative impact on the attitude towards an advertisement can be translated to a similar impact on the attitude towards the brand. For doing so both parameters need to be measured. In the presented study the attitude shift was just measured towards the brand image. Nevertheless, such a proposed extension would be interesting to look at. In literature Dröge (1989), using the ELM framework, suggest that attitude toward an ad positively affects attitudes toward the brand only in low involvement situations. Again participants' current situation setting should be analyzed to check this suggestion from Dröge (1989).

4.5 CONCLUSION AND PRACTICAL IMPLICATIONS

Practice as well as research have shown that greenwashing can impact consumers behavior as “greenness” is becoming more and more trendy (Naderer et al. 2017, p.107).

This study contributed to research in that it showed how important it is to factor individual consumer characteristics in. Over all groups, however, no significant moderating effects of emotional nor cognitive cues could be detected on greenwashing detection, brand image or purchase intention.

In some study conditions, including emotional cues and cognitive cues did lead to a higher greenwashing detection level compared to pure or non greenwashing. At the same time these cues did not lead to significant alterations in brand image or purchase intention. This should serve as indication that marketers need to think well about when and in which circumstances cognitive or affective cues should be included.

Nevertheless, many studies in literature are favoring e.g. the inclusion of emotional cues, like Parguel et al. (2015). They underline that consumers, irrespective of their expertise level, are effected by nature evoking elements as emotional cue. In this study, though, no significant influences of the cues could be tested. It shows how complicated and interrelated the influence of different components on the success and effect of advertising can be. At all means, it is important to highlight that the dichotomization between cognition and emotion leads to a poor and outdated view on how human brains work.

It was an important insight of this study, that low concerned or informed consumers reacted differently (while not always significantly) to the emotional and cognitive cues than their highly informed or concerned counterparts.

These findings highlight the impact of involvement. Also in the context of “executional greenwashing” Parguel et al. (2015) already made aware of the persuasive effects and the dependency on individuals` topic knowledge.

In opposition to earlier studies, which suggested a counterintuitive high impact of emotive appeals such as nature imagery (Huddy et al. 2000) on highly involved consumers due to passionate reasoning, this study found that highly

informed and highly concerned study participants did not show significant changes due to emotional cues.

They, rather, tended to see greenwashing threats in every green product.

Highly informed and highly concerned consumers showed a high sensibility, which should be taken into account when promoting products and services.

Similar findings were already suggested earlier by Shrum et al. (1995, p.81), making aware of the thoughtfulness of “green” consumers, namely consumers with high green involvement. Shrum et al. suggested that marketers need to treat green consumers with respect as otherwise these consumer group switches brand pretty quickly.

This described thoughtfulness and skepticism on the one hand is a good development, as consumers are getting more aware of the practice of greenwashing, but on the other hand, if they are sceptical in such a high degree it also brings disadvantages. Also truly honest green products may be avoided. All in all, the insignificance between greenwashing detection differences between the four groups shows how hard it is for consumers to evaluate the truthfulness of advertisements.

Low concerned consumers were effected significantly by emotional cues as well as by cognitive cues, rising their greenwashing detection level.

Low informed consumers were just influence by cognitive cues leading to an alteration of their greenwashing detection.

To educate consumers and make them aware of greenwashing practices like the “seven sins of greenwashing” (Terrachoice 2010) and disinformation practices in marketing is essential. As shown within the correlation analysis, as soon as greenwashing has been detected, purchase intention and brand image go down. Thus, education could serve as safeguard for truly green products and help to sustain our flora and fauna.

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6 APPENDIX

6.1 FIGURES

Figure 20: example sin of hidden tradeoff (Quelle: <https://goo.gl/images/t7yLPz>)



Figure 21: example sin of no proof (Quelle: <https://goo.gl/images/qTCnv8>)



Figure 22: example sin of vagueness (Quelle: <https://goo.gl/images/eGBtB2>)



Figure 23: example sin of worshipping false labels (Quelle: <https://goo.gl/images/9iAoez>)



Figure 24: example for sin of irrelevance (Quelle: <https://goo.gl/images/BcVqfL>)



Figure 25: sin of fibbing example (Quelle: <http://blogs.worldwatch.org/greenwashing-green-products-trying-trick/>)



Figure 26: example sin of lesser of two evils (Quelle: <https://goo.gl/images/15iFcy>)



Figure 27: example 2 sin of lesser of two evils (Quelle: <https://goo.gl/images/cV86WT>)



Figure 28: Ad Sequence 1 (<https://i.ytimg.com/vi/7xp8rAYAPMA/maxresdefault.jpg>)



Figure 29: Figure 20: Ad Sequence 2

(<https://www.facebook.com/kinderriegel/photos/a.275384121721.149110.270870066721/10154790435031722/?type=3&theater> and <https://images.google.at/imgres?imgurl=https%3A%2F%2Flookaside.fbsbx.com%2Flookaside%2Fcrawler%2Fmedia%2F%3F>)

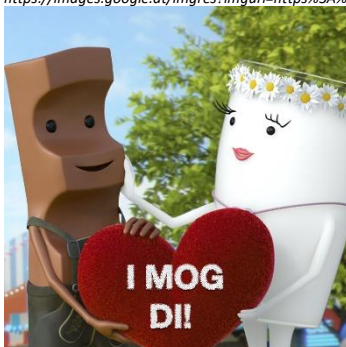


Figure 30: Ad Sequence 3

(<https://www.facebook.com/kinderriegel/photos/a.275384121721.149110.270870066721/10154790435031722/?type=3&theater>)



Figure 31: Ad Sequence 4 (<https://i.ytimg.com/vi/UKG0xHCDKIs/hqdefault.jpg>)



6.2 SPSS TABLES

Participants data

Statistics						
		Gruppe	Geschlecht	Alter	Ausbildung	Einkommen
N	Valid	295	295	295	295	295
	Missing	0	0	0	0	0
Mean		2,5458	1,40	34,16	8,91	7,16
Std. Deviation		1,11137	,491	12,888	1,250	4,680
Range		3,00	1	62	4	14

Table 3: Participants characteristics

Gruppe					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kein Greenwashing	66	22,4	22,4	22,4
	reines Ggreenwashing	81	27,5	27,5	49,8
	Greenwashing + Bild	69	23,4	23,4	73,2
	Greenwashing + Fakt	79	26,8	26,8	100,0
	Total	295	100,0	100,0	

Table 4: number of participants per group/ condition

Alter					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13	1	,3	,3	,3
	14	2	,7	,7	1,0
	15	2	,7	,7	1,7
	16	2	,7	,7	2,4
	17	1	,3	,3	2,7
	19	1	,3	,3	3,1
	20	3	1,0	1,0	4,1
	21	12	4,1	4,1	8,1
	22	8	2,7	2,7	10,8
	23	17	5,8	5,8	16,6
	24	18	6,1	6,1	22,7
	25	17	5,8	5,8	28,5

26	26	8,8	8,8	37,3
27	11	3,7	3,7	41,0
28	10	3,4	3,4	44,4
29	14	4,7	4,7	49,2
30	9	3,1	3,1	52,2
31	8	2,7	2,7	54,9
32	10	3,4	3,4	58,3
33	8	2,7	2,7	61,0
34	10	3,4	3,4	64,4
35	11	3,7	3,7	68,1
36	5	1,7	1,7	69,8
37	7	2,4	2,4	72,2
38	5	1,7	1,7	73,9
39	2	,7	,7	74,6
40	5	1,7	1,7	76,3
41	2	,7	,7	76,9
42	3	1,0	1,0	78,0
43	1	,3	,3	78,3
45	3	1,0	1,0	79,3
46	2	,7	,7	80,0
47	1	,3	,3	80,3
48	1	,3	,3	80,7
49	3	1,0	1,0	81,7
50	6	2,0	2,0	83,7
51	5	1,7	1,7	85,4
52	6	2,0	2,0	87,5
53	5	1,7	1,7	89,2
54	1	,3	,3	89,5
55	1	,3	,3	89,8
56	2	,7	,7	90,5
57	4	1,4	1,4	91,9
58	3	1,0	1,0	92,9
59	3	1,0	1,0	93,9
60	5	1,7	1,7	95,6
61	2	,7	,7	96,3
62	1	,3	,3	96,6
63	2	,7	,7	97,3
64	1	,3	,3	97,6

65	3	1,0	1,0	98,6
69	1	,3	,3	99,0
70	1	,3	,3	99,3
73	1	,3	,3	99,7
75	1	,3	,3	100,0
Total	295	100,0	100,0	

Table 5: age distribution

Geschlecht					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	weiblich	176	59,7	59,7	59,7
	männlich	119	40,3	40,3	100,0
	Total	295	100,0	100,0	

Table 6: Gender Distribution

Ausbildung					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	9	3,1	3,1	3,1
	7	39	13,2	13,2	16,3
	8	73	24,7	24,7	41,0
	9	22	7,5	7,5	48,5
	10	152	51,5	51,5	100,0
	Total	295	100,0	100,0	

Table 7: Education Distribution

Einkommen					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A Weniger als 1.000 Euro	23	7,8	7,8	7,8
	B zwischen 1.000 € und 1.500 €	22	7,5	7,5	15,3
	C zwischen 1.500 € und 2.000 €	38	12,9	12,9	28,1
	D zwischen 2.000 € und 2.500 €	30	10,2	10,2	38,3
	E zwischen 2.500 € und 3.000 €	25	8,5	8,5	46,8

F zwischen 3.000 € und 3.500 €	16	5,4	5,4	52,2
G zwischen 3.500 € und 4.000 €	21	7,1	7,1	59,3
H zwischen 4.000 € und 4.500 €	26	8,8	8,8	68,1
I zwischen 4.500 € und 5.000 €	14	4,7	4,7	72,9
J zwischen 5.000 € und 5.500 €	9	3,1	3,1	75,9
K zwischen 5.500 € und 6.000 €	4	1,4	1,4	77,3
L zwischen 6.000 € und 6.500 €	3	1,0	1,0	78,3
M zwischen 6.500 € und 7.000 €	3	1,0	1,0	79,3
N mehr als 7.000 €	16	5,4	5,4	84,7
keine Angabe	45	15,3	15,3	100,0
Total	295	100,0	100,0	

Table 8: Income Distribution

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gruppe	295	1,00	4,00	2,5458	1,11137
Einkommen	295	1	15	7,16	4,680
Valid N (listwise)	295				

Table 9: Income Statistics

Measurement data

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Ich bin bereit Opfer zu bringen, um die Umwelt zu schützen.	11,51	4,645	,598	,595
Ich Sorge mich um die Umwelt.	10,94	5,361	,615	,591
Der Zustand der Umwelt beeinflusst meine Lebensqualität.	10,96	5,236	,472	,750

Table 10: Environmental Concern Items

Reliability Statistics

Cronbach's Alpha	N of Items
,733	3

Table 11: Environmental Concern Reliability

Statistics

environmentalconcern_idx

N	Valid	295
	Missing	0
Mean		5,5684
Median		5,6667
Std. Deviation		1,05863
Range		5,33
Minimum		1,67
Maximum		7,00

Table 12: Environmental Concern Index, Mean & SD

environmentalconcern_idx

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,67	1	,3	,3	,3
2,00	1	,3	,3	,7
2,33	1	,3	,3	1,0

2,67	1	,3	,3	1,4
3,00	4	1,4	1,4	2,7
3,33	6	2,0	2,0	4,7
3,67	9	3,1	3,1	7,8
4,00	5	1,7	1,7	9,5
4,33	12	4,1	4,1	13,6
4,67	29	9,8	9,8	23,4
5,00	23	7,8	7,8	31,2
5,33	34	11,5	11,5	42,7
5,67	37	12,5	12,5	55,3
6,00	39	13,2	13,2	68,5
6,33	28	9,5	9,5	78,0
6,67	32	10,8	10,8	88,8
7,00	33	11,2	11,2	100,0
Total	295	100,0	100,0	

Table 13: Environmental Concern Likert Scale Selection

Statistics

Ich bin bereit Opfer zu bringen, um
die Umwelt zu schützen.

N	Valid	295
	Missing	0
Mean		5,20
Median		5,00
Std. Deviation		1,376
Range		6
Minimum		1
Maximum		7

Table 14: Item 1 Environmental Concern

Statistics

Ich Sorge mich um die Umwelt.

N	Valid	295
	Missing	0
Mean		5,76
Median		6,00
Std. Deviation		1,174
Range		6
Minimum		1
Maximum		7

Table 15: Item 2 Environmental Concern

Statistics

Der Zustand der Umwelt

beeinflusst meine Lebensqualität.

N	Valid	295
	Missing	0
Mean		5,75
Median		6,00
Std. Deviation		1,373
Range		6
Minimum		1
Maximum		7

Table 16: Item 3 Environmental Concern

environmentalconcern_idx(Klassiert)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	niedrige concern	163	55,3	55,3	55,3
	hoch	132	44,7	44,7	100,0
	Total	295	100,0	100,0	

Table 17: subgroups environmental concern

Statistiken

environmental knowledge

N	Gültig	295
	Fehlend	0
Mittelwert		4,5458
Median		5,0000
Standardabweichung		1,53987
Spannweite		8,00
Minimum		,00
Maximum		8,00

Table 18: Green Knowledge Index, Mean & SD

environmental knowledge

	Häufigkeit	Prozent	Gültige Prozente	Kumulierte Prozente
Gültig ,00	3	1,0	1,0	1,0
1,00	7	2,4	2,4	3,4
2,00	21	7,1	7,1	10,5
3,00	35	11,9	11,9	22,4
4,00	69	23,4	23,4	45,8
5,00	77	26,1	26,1	71,9
6,00	58	19,7	19,7	91,5
7,00	22	7,5	7,5	99,0
8,00	3	1,0	1,0	100,0
Gesamt	295	100,0	100,0	

Table 19: Green Knowledge Likert Scale Selection

env_know_2group

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid niedriges Wissen	135	45,8	45,8	45,8
hohes Wissen	160	54,2	54,2	100,0
Total	295	100,0	100,0	

Table 20: subgroups green knowledge

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Ich habe schon einmal der Umwelt zuliebe zu anderen Produkten gewechselt.	25,57	32,641	,675	,814
Wenn ich die Wahl zwischen zwei gleichwertigen Produkten habe, kaufe ich das, welches der Umwelt und anderen Menschen weniger schadet.	25,28	36,060	,611	,827
Ich betreibe besonderen Aufwand, um Produkte in biologisch abbaubarer Verpackung zu kaufen.	27,46	34,542	,544	,840

Ich wäre bereit umweltfreundliche Putzmittel zu kaufen, selbst wenn diese zu einer geringeren Sauberkeit führen als herkömmliche Marken.	26,63	33,976	,546	,841
Ich mag es, grüne Produkte zu kaufen.	25,73	32,935	,744	,801
Der Kauf grüner Produkte ist zu bevorzugen.	25,47	34,359	,697	,811

Table 21: Green Buying Items

Reliability Statistics

Cronbach's Alpha	N of Items
,848	6

Table 22: Green Buying Reliability

Statistics

greenbuying_idx

N	Valid	295
	Missing	0
Mean		5,2045
Median		5,3333
Std. Deviation		1,15026
Range		6,00
Minimum		1,00
Maximum		7,00

Table 23: Green Buying Index, Mean & SD

greenbuying_idx

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,00	2	,7	,7	,7
1,33	1	,3	,3	1,0
1,67	2	,7	,7	1,7
2,17	1	,3	,3	2,0
2,67	2	,7	,7	2,7
2,83	1	,3	,3	3,1
3,00	6	2,0	2,0	5,1
3,17	8	2,7	2,7	7,8

3,33	2	,7	,7	8,5
3,50	2	,7	,7	9,2
3,67	4	1,4	1,4	10,5
3,83	8	2,7	2,7	13,2
4,00	10	3,4	3,4	16,6
4,17	9	3,1	3,1	19,7
4,33	5	1,7	1,7	21,4
4,50	9	3,1	3,1	24,4
4,67	6	2,0	2,0	26,4
4,83	15	5,1	5,1	31,5
5,00	28	9,5	9,5	41,0
5,17	21	7,1	7,1	48,1
5,33	21	7,1	7,1	55,3
5,50	16	5,4	5,4	60,7
5,67	8	2,7	2,7	63,4
5,83	18	6,1	6,1	69,5
6,00	15	5,1	5,1	74,6
6,17	12	4,1	4,1	78,6
6,33	19	6,4	6,4	85,1
6,50	20	6,8	6,8	91,9
6,67	12	4,1	4,1	95,9
6,83	8	2,7	2,7	98,6
7,00	4	1,4	1,4	100,0
Total	295	100,0	100,0	

Table 24: Green Buying Likert Scale Selection

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Der Text der Anzeigen über die umweltfreundlichen Eigenschaften der Produkte ist irreführend.	14,12	16,880	,695	,753
Die Anzeigen sind aufgrund ihrer grafischen und bildlichen Elemente irreführend.	14,59	18,052	,587	,804
Die Anzeigen übertreiben den Nutzen der Produkte für die Umwelt.	13,38	17,264	,695	,753
Die Anzeigen stellen die Produkte als nützlicher für die Umwelt dar, als sie es sind.	13,24	18,857	,610	,792

Table 25: Greenwashing Detection Items

Reliability Statistics

Cronbach's Alpha	N of Items
,822	4

Table 26: Greenwashing Detection Reliability

Statistics

greenwash_idx

N	Valid	295
	Missing	0
Mean		4,6110
Median		4,7500
Std. Deviation		1,36502
Range		6,00
Minimum		1,00
Maximum		7,00

Table 27: Greenwashing Detection Index, Mean & SD

greenwash_idx

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	1	,3	,3	,3
	1,25	3	1,0	1,0	1,4
	1,50	1	,3	,3	1,7
	1,75	3	1,0	1,0	2,7
	2,00	5	1,7	1,7	4,4
	2,25	8	2,7	2,7	7,1
	2,50	7	2,4	2,4	9,5
	2,75	6	2,0	2,0	11,5
	3,00	10	3,4	3,4	14,9
	3,25	13	4,4	4,4	19,3
	3,50	14	4,7	4,7	24,1
	3,75	12	4,1	4,1	28,1
	4,00	20	6,8	6,8	34,9
	4,25	17	5,8	5,8	40,7
	4,50	19	6,4	6,4	47,1
	4,75	23	7,8	7,8	54,9
	5,00	24	8,1	8,1	63,1
	5,25	13	4,4	4,4	67,5
	5,50	26	8,8	8,8	76,3
	5,75	18	6,1	6,1	82,4
	6,00	12	4,1	4,1	86,4
	6,25	11	3,7	3,7	90,2
	6,50	8	2,7	2,7	92,9
	6,75	4	1,4	1,4	94,2
	7,00	17	5,8	5,8	100,0
Total		295	100,0	100,0	

Table 28: Greenwashing Detection Likert Scale Selection

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Die beiden Anzeigen gaben mir das Gefühl, nahe an der Natur zu sein.	5,84	11,107	,750	,799

Die beiden Anzeigen ließen mich an Natur, Felder, Wälder und Berge denken.	5,56	9,928	,707	,847
Die beiden Anzeigen erweckten in mir das Gefühl, in der Natur zu sein.	5,94	10,911	,773	,779

Table 29: Virtual Nature Experience Items

Reliability Statistics	
Cronbach's Alpha	N of Items
,863	3

Table 30: Virtual Nature Experience Reliability

Statistics		
virtualnatureexp_idx		
N	Valid	295
	Missing	0
Mean		2,8893
Median		2,6667
Std. Deviation		1,57832
Range		6,00
Minimum		1,00
Maximum		7,00

Table 31: Virtual Nature Experience Index, Mean & SD

virtualnatureexp_idx				
		Frequency	Percent	Cumulative Percent
Valid	1,00	45	15,3	15,3
	1,33	21	7,1	22,4
	1,67	22	7,5	29,8
	2,00	38	12,9	42,7
	2,33	18	6,1	48,8
	2,67	21	7,1	55,9
	3,00	20	6,8	62,7
	3,33	15	5,1	67,8
	3,67	19	6,4	74,2
	4,00	12	4,1	78,3
	4,33	11	3,7	82,0
	4,67	12	4,1	86,1

5,00	9	3,1	3,1	89,2
5,33	6	2,0	2,0	91,2
5,67	9	3,1	3,1	94,2
6,00	5	1,7	1,7	95,9
6,33	6	2,0	2,0	98,0
6,67	2	,7	,7	98,6
7,00	4	1,4	1,4	100,0
Total	295	100,0	100,0	

Table 32: Virtual Nature Experience Likert Scale Selection

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Die beiden Marken die in den Anzeigen beworben wurden, helfen die Umwelt zu schützen.	5,74	8,797	,644	,744
Durch den Kauf der beiden Marken die in den Anzeigen beworben wurden, kann ich anderen Menschen zeigen, dass mir die Umwelt wichtig ist.	6,02	8,551	,631	,756
Eine Wasserflasche von Mount Franklin, sowie ein Joghurt von Skyr ist besser für die Umwelt als andere Wasserflaschen bzw. Joghurts.	5,80	7,836	,685	,699

Table 33: Utilitarian Benefit Items

Reliability Statistics

Cronbach's Alpha	N of Items
,805	3

Table 34: Utilitarian Benefit Reliability

Statistics

utilitarianbenefit_idx

N	Valid	295
	Missing	0
Mean		2,9266
Median		3,0000
Std. Deviation		1,38296
Range		6,00
Minimum		1,00
Maximum		7,00

Table 35: Utilitarian Benefit Index, Mean & SD

utilitarianbenefit_idx

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	42	14,2	14,2	14,2
	1,33	18	6,1	6,1	20,3
	1,67	18	6,1	6,1	26,4
	2,00	24	8,1	8,1	34,6
	2,33	23	7,8	7,8	42,4
	2,67	16	5,4	5,4	47,8
	3,00	28	9,5	9,5	57,3
	3,33	23	7,8	7,8	65,1
	3,67	13	4,4	4,4	69,5
	4,00	26	8,8	8,8	78,3
	4,33	24	8,1	8,1	86,4
	4,67	14	4,7	4,7	91,2
	5,00	12	4,1	4,1	95,3
	5,33	5	1,7	1,7	96,9
	5,67	3	1,0	1,0	98,0
	6,00	4	1,4	1,4	99,3
	6,67	1	,3	,3	99,7
	7,00	1	,3	,3	100,0
Total		295	100,0	100,0	

Table 36: Utilitarian Benefit Likert Scale Selection

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
schlecht gemacht - gut gemacht	12,44	12,867	,654	,816
unangenehm - angenehm	12,05	13,596	,695	,798
nicht überzeugend - überzeugend	13,32	13,041	,648	,818
negativ - positiv	12,41	13,304	,736	,781

Table 37: Ads Evaluation Items

Reliability Statistics

Cronbach's Alpha	N of Items
,845	4

Table 38: Ads Evaluation Reliability

Statistics

adevaluation_idx

N	Valid	295
	Missing	0
Mean		4,1856
Median		4,2500
Std. Deviation		1,18095
Range		6,00
Minimum		1,00
Maximum		7,00

Table 39: Ads Evaluation Index, Mean & SD

adevaluation_idx

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,00	3	1,0	1,0	1,0
1,25	1	,3	,3	1,4
1,50	2	,7	,7	2,0
1,75	2	,7	,7	2,7
2,00	9	3,1	3,1	5,8
2,25	6	2,0	2,0	7,8
2,50	9	3,1	3,1	10,8
2,75	7	2,4	2,4	13,2

3,00	20	6,8	6,8	20,0
3,25	12	4,1	4,1	24,1
3,50	18	6,1	6,1	30,2
3,75	13	4,4	4,4	34,6
4,00	31	10,5	10,5	45,1
4,25	29	9,8	9,8	54,9
4,50	24	8,1	8,1	63,1
4,75	23	7,8	7,8	70,8
5,00	24	8,1	8,1	79,0
5,25	22	7,5	7,5	86,4
5,50	9	3,1	3,1	89,5
5,75	8	2,7	2,7	92,2
6,00	8	2,7	2,7	94,9
6,25	7	2,4	2,4	97,3
6,50	6	2,0	2,0	99,3
6,75	1	,3	,3	99,7
7,00	1	,3	,3	100,0
Total	295	100,0	100,0	

Table 40: Ads Evaluation Likert Scale Selection

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
unattraktiv - attraktiv	12,51	12,115	,761	,890
unsympathisch - sympathisch	12,44	11,696	,838	,861
negativ - positiv	12,42	13,075	,787	,881
nicht empfehlenswert - empfehlenswert	12,57	12,797	,778	,883

Table 41: Mount Franklin Brand Image Items

Reliability Statistics	
Cronbach's Alpha	N of Items
,906	4

Table 42: Mount Franklin Brand Image Reliability

Statistics		
Wasser_evaluation_idx		
N	Valid	295

Missing	0
Mean	4,1619
Median	4,2500
Std. Deviation	1,15685
Range	6,00
Minimum	1,00
Maximum	7,00

Table 43: Mount Franklin Brand Image Index, Mean & SD

Wasser_evaluation_idx					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	7	2,4	2,4	2,4
	1,25	1	,3	,3	2,7
	1,50	2	,7	,7	3,4
	1,75	5	1,7	1,7	5,1
	2,00	4	1,4	1,4	6,4
	2,25	3	1,0	1,0	7,5
	2,50	4	1,4	1,4	8,8
	2,75	7	2,4	2,4	11,2
	3,00	17	5,8	5,8	16,9
	3,25	10	3,4	3,4	20,3
	3,50	12	4,1	4,1	24,4
	3,75	24	8,1	8,1	32,5
	4,00	49	16,6	16,6	49,2
	4,25	28	9,5	9,5	58,6
	4,50	22	7,5	7,5	66,1
	4,75	24	8,1	8,1	74,2
	5,00	22	7,5	7,5	81,7
	5,25	15	5,1	5,1	86,8
	5,50	13	4,4	4,4	91,2
	5,75	9	3,1	3,1	94,2
	6,00	6	2,0	2,0	96,3
	6,25	4	1,4	1,4	97,6
	6,50	3	1,0	1,0	98,6
	6,75	1	,3	,3	99,0
	7,00	3	1,0	1,0	100,0
	Total		295	100,0	100,0

Table 44: Mount Franklin Brand Image, Likert Scale Selection

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
unattraktiv - attraktiv	13,74	14,998	,863	,922
unsympathisch - sympathisch	13,67	15,249	,893	,911
negativ - positiv	13,75	15,806	,878	,916
nicht empfehlenswert - empfehlenswert	13,95	17,014	,806	,939

Table 45: Skyr Brand Image Items

Reliability Statistics

Cronbach's Alpha	N of Items
,941	4

Table 46: Skyr Brand Image Reliability

Statistics

Joghurt evaluation idx

N	Valid	295
	Missing	0
Mean		4,5924
Median		4,7500
Std. Deviation		1,31066
Range		6,00
Minimum		1,00
Maximum		7,00

Table 47: Skyr Brand Image Index, Mean & SD

Joghurt evaluation_idx

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,00	8	2,7	2,7	2,7
1,25	1	,3	,3	3,1
1,50	1	,3	,3	3,4
1,75	4	1,4	1,4	4,7
2,00	2	,7	,7	5,4
2,25	5	1,7	1,7	7,1
2,50	4	1,4	1,4	8,5

2,75	4	1,4	1,4	9,8
3,00	5	1,7	1,7	11,5
3,25	13	4,4	4,4	15,9
3,50	6	2,0	2,0	18,0
3,75	6	2,0	2,0	20,0
4,00	39	13,2	13,2	33,2
4,25	22	7,5	7,5	40,7
4,50	17	5,8	5,8	46,4
4,75	28	9,5	9,5	55,9
5,00	32	10,8	10,8	66,8
5,25	18	6,1	6,1	72,9
5,50	22	7,5	7,5	80,3
5,75	13	4,4	4,4	84,7
6,00	12	4,1	4,1	88,8
6,25	10	3,4	3,4	92,2
6,50	5	1,7	1,7	93,9
6,75	9	3,1	3,1	96,9
7,00	9	3,1	3,1	100,0
Total	295	100,0	100,0	

Table 48: S kyr Brand Image, Likert Scale Selection

Statistiken

Gruppe

N	Gültig	295
	Fehlend	0
Modus		2,00
Spannweite		3,00
Minimum		1,00
Maximum		4,00

Table 49: Group, Mean & SD

Gruppe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kein Greenwashing	66	22,4	22,4	22,4
	reines Grrenwashing	81	27,5	27,5	49,8
	Greenwashing + Bild	69	23,4	23,4	73,2
	Greenwashing + Fakt	79	26,8	26,8	100,0
	Total	295	100,0	100,0	

Table 50: Equal Distribution of Groups

Statistiken			
Gruppe			
Kein Greenwashing	N	Gültig	66
		Fehlend	0
	Modus		1,00
	Spannweite		,00
	Minimum		1,00
	Maximum		1,00
reines Grrnwashing	N	Gültig	81
		Fehlend	0
	Modus		2,00
	Spannweite		,00
	Minimum		2,00
	Maximum		2,00
Greenwashing + Bild	N	Gültig	69
		Fehlend	0
	Modus		3,00
	Spannweite		,00
	Minimum		3,00
	Maximum		3,00
Greenwashing + Fakt	N	Gültig	79
		Fehlend	0
	Modus		4,00
	Spannweite		,00
	Minimum		4,00
	Maximum		4,00

Table 51: Details of Groups

Tests of Between-Subjects Effects

Dependent Variable: Alter

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	111,774 ^a	3	37,258	,223	,881
Intercept	341025,623	1	341025,623	2036,954	,000
Gruppe	111,774	3	37,258	,223	,881
Error	48719,053	291	167,419		
Total	392986,000	295			
Corrected Total	48830,827	294			

a. R Squared = ,002 (Adjusted R Squared = -,008)

Table 52: Age Randomization Check

Crosstab

Count

		Geschlecht		Total
		weiblich	männlich	
Gruppe	Kein Greenwashing	34	32	66
	reines Greenwashing	49	32	81
	Greenwashing + Bild	43	26	69
	Greenwashing + Fakt	50	29	79
Total		176	119	295

Table 53: Gender Randomization Check

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	2,478 ^a	3	,479
Likelihood Ratio	2,454	3	,484
Linear-by-Linear Association	1,911	1	,167
N of Valid Cases	295		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 26,62.

Table 54: Chi-Square Test for Gender Randomization Check

Gruppe * Ausbildung Crosstabulation							
Count		Ausbildung					Total
		Allgemeinbild ende Pflichtschule	Lehrlingsaus bildung, berufsbildend e mittlere Schule	Matura (AHS, BHS)	Hochschulver wandte Ausbildung (Akademie, Kolleg)	Universität, Fachhochsch ule	
Gruppe	Kein Greenwashing	0	5	21	3	37	66
	reines Greenwashing	5	10	18	6	42	81
	Greenwashing + Bild	2	13	14	9	31	69
	Greenwashing + Fakt	2	11	20	4	42	79
Total		9	39	73	22	152	295

Table 55: Education Randomization Check

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	15,233 ^a	12	,229
Likelihood Ratio	16,371	12	,175
Linear-by-Linear Association	,623	1	,430
N of Valid Cases	295		

a. 5 cells (25,0%) have expected count less than 5. The minimum expected count is 2,01.

Table 56: Chi-Square Test for Education Randomization Check

Verarbeitete Fälle						
	Fälle					
	Gültig		Fehlend		Gesamt	
	N	Prozent	N	Prozent	N	Prozent
Recall_wasser_korrekt *	295	100,0%	0	0,0%	295	100,0%
Gruppe						
Recall_Joghurt_korrekt *	295	100,0%	0	0,0%	295	100,0%
Gruppe						
Recognition EmotionCue *	295	100,0%	0	0,0%	295	100,0%
Gruppe						
Recognition EmotionCue	295	100,0%	0	0,0%	295	100,0%
Joghurt * Gruppe						

Table 57: Manipulation Check Crosstab

Recall_wasser_korrekt * Gruppe

Kreuztabelle							
			Gruppe				Gesamt
			Kein Greenwashing	reines Greenwashing	Greenwashing + Bild	Greenwashing + Fakt	
Recall_wasser_korrekt	keine/falsche Angabe	Anzahl	65	80	69	24	238
		% innerhalb von Gruppe	98,5%	98,8%	100,0%	30,4%	80,7%
	richtige Angabe	Anzahl	1	1	0	55	57
		% innerhalb von Gruppe	1,5%	1,2%	0,0%	69,6%	19,3%
Gesamt		Anzahl	66	81	69	79	295
		% innerhalb von Gruppe	100,0%	100,0%	100,0%	100,0%	100,0%

Table 58: Manipulation Check Recall of cognitive cue; water advertisement

Chi-Quadrat-Tests

	Wert	df	Asymptotische Signifikanz (zweiseitig)
Chi-Quadrat nach Pearson	175,160 ^a	3	,000
Likelihood-Quotient	171,447	3	,000
Zusammenhang linear-mit-linear	106,815	1	,000
Anzahl der gültigen Fälle	295		

a. 0 Zellen (,0%) haben eine erwartete Häufigkeit kleiner 5. Die minimale erwartete Häufigkeit ist 12,75.

Table 59: Chi-square test Recall cognitive cue, water advertisement

Recall_Joghurt_korrekt * Gruppe

Kreuztabelle

			Gruppe				Gesamt
			Kein Greenwashin g	reines Grrenwashin g	Greenwashin g + Bild	Greenwashin g + Fakt	
Recall_Joghurt_korrekt	keine/falsche Angabe	Anzahl	59	73	67	18	217
		% innerhalb von Gruppe	89,4%	90,1%	97,1%	22,8%	73,6%
	richtige Angabe	Anzahl	7	8	2	61	78
		% innerhalb von Gruppe	10,6%	9,9%	2,9%	77,2%	26,4%
Gesamt	Anzahl	66	81	69	79	295	
	% innerhalb von Gruppe	100,0%	100,0%	100,0%	100,0%	100,0%	

Table 60: Manipulation Check Recall of cognitive cue; yoghurt advertisement

Chi-Quadrat-Tests

	Wert	df	Asymptotische Signifikanz (zweiseitig)
Chi-Quadrat nach Pearson	144,312 ^a	3	,000
Likelihood-Quotient	141,030	3	,000
Zusammenhang linear-mit-linear	78,172	1	,000
Anzahl der gültigen Fälle	295		

a. 0 Zellen (,0%) haben eine erwartete Häufigkeit kleiner 5. Die minimale erwartete Häufigkeit ist 17,45.

Table 61: Chi-square test Recall cognitive cue, yoghurt advertisement

Recognition EmotionCue * Gruppe

Kreuztabelle

			Gruppe				Gesamt
			Kein Greenwashing	reines Greenwashing	Greenwashing + Bild	Greenwashing + Fakt	
Recognition EmotionCue	Alm + Berg	Anzahl	11	10	22	14	57
		% innerhalb von Gruppe	16,7%	12,3%	31,9%	17,7%	19,3%
	Bergsee	Anzahl	12	22	42	23	99
		% innerhalb von Gruppe	18,2%	27,2%	60,9%	29,1%	33,6%
	neutrales Hintergrundbild (Farbverlauf, Symbole, etc.)	Anzahl	43	49	5	42	139
		% innerhalb von Gruppe	65,2%	60,5%	7,2%	53,2%	47,1%
	Gesamt	Anzahl	66	81	69	79	295
		% innerhalb von Gruppe	100,0%	100,0%	100,0%	100,0%	100,0%

Table 62: Manipulation Check Recognition of emotional cue; water advertisement

Chi-Quadrat-Tests

	Wert	df	Asymptotische Signifikanz (zweiseitig)
Chi-Quadrat nach Pearson	60,984 ^a	6	,000
Likelihood-Quotient	70,641	6	,000
Zusammenhang linear-mit- linear	8,272	1	,004
Anzahl der gültigen Fälle	295		

a. 0 Zellen (,0%) haben eine erwartete Häufigkeit kleiner 5. Die minimale erwartete Häufigkeit ist 12,75.

Table 63: Chi-square test recognition emotional cue, water advertisement

Recognition EmotionCue Joghurt * Gruppe

Kreuztabelle							
			Gruppe				Gesamt
			Kein Greenwashing	reines Greenwashing	Greenwashing + Bild	Greenwashing + Fakt	
Recognition EmotionCue Joghurt	Tiere	Anzahl	1	1	1	0	3
		% innerhalb von Gruppe	1,5%	1,2%	1,4%	0,0%	1,0%
	Alm + Berg	Anzahl	7	16	43	12	78
		% innerhalb von Gruppe	10,6%	19,8%	62,3%	15,2%	26,4%
	Bergsee	Anzahl	3	3	9	3	18
		% innerhalb von Gruppe	4,5%	3,7%	13,0%	3,8%	6,1%
	Menschen	Anzahl	1	0	0	0	1
		% innerhalb von Gruppe	1,5%	0,0%	0,0%	0,0%	0,3%
	neutrales Hintergrundbild (Farbverlauf, Symbole, etc.)	Anzahl	54	61	16	64	195
		% innerhalb von Gruppe	81,8%	75,3%	23,2%	81,0%	66,1%
Gesamt	Anzahl	66	81	69	79	295	
	% innerhalb von Gruppe	100,0%	100,0%	100,0%	100,0%	100,0%	

Table 64: Manipulation Check Recognition of emotional cue; yoghurt advertisement

Chi-Quadrat-Tests

	Wert	df	Asymptotische Signifikanz (zweiseitig)
Chi-Quadrat nach Pearson	82,149 ^a	12	,000
Likelihood-Quotient	80,728	12	,000
Zusammenhang linear-mit-linear	3,460	1	,063
Anzahl der gültigen Fälle	295		

a. 12 Zellen (60,0%) haben eine erwartete Häufigkeit kleiner 5. Die minimale erwartete Häufigkeit ist ,22.

Table 65: Chi-square test recognition emotional cue, yoghurt advertisement

Deskriptive Statistiken

Abhängige Variable: nicht faktenbezogen - faktenbezogen

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	3,42	1,266	66
reines Greenwashing	3,48	1,558	81
Greenwashing + Bild	3,03	1,403	69
Greenwashing + Fakt	3,87	1,497	79
Gesamt	3,47	1,468	295

Table 66: non fact to fact based Likert Scale per Group, M and SD

Tests der Zwischensubjekteffekte

Abhängige Variable: nicht faktenbezogen - faktenbezogen

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	26,424 ^a	3	8,808	4,223	,006	,042
Konstanter Term	3488,943	1	3488,943	1672,569	,000	,852
Gruppe	26,424	3	8,808	4,223	,006	,042
Fehler	607,020	291	2,086			
Gesamt	4181,000	295				
Korrigierte Gesamtvariation	633,444	294				

a. R-Quadrat = ,042 (korrigiertes R-Quadrat = ,032)

Table 67: Significance Test, (non) fact based grade difference among all groups

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: nicht faktenbezogen -
faktenbezogen

F	df1	df2	Sig.
2,097	3	291	,101

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 68: Levene Test, (non) fact based

Gesamtmittelwert

Abhängige Variable: nicht faktenbezogen - faktenbezogen

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
3,452	,084	3,286	3,618

Table 69: estimated marginal mean, (non) fact based

Multiple Comparisons

Abhängige Variable: nicht faktenbezogen - faktenbezogen

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Greenwashing	-,06	,239	,996	-,73	,62
	Greenwashing + Bild	,40	,249	,472	-,30	1,09
	Greenwashing + Fakt	-,45	,241	,326	-1,13	,23
reines Greenwashing	Kein Greenwashing	,06	,239	,996	-,62	,73
	Greenwashing + Bild	,45	,237	,303	-,21	1,12
	Greenwashing + Fakt	-,39	,228	,402	-1,03	,25
Greenwashing + Bild	Kein Greenwashing	-,40	,249	,472	-1,09	,30
	reines Greenwashing	-,45	,237	,303	-1,12	,21
	Greenwashing + Fakt	-,84*	,238	,006	-1,51	-,18
Greenwashing + Fakt	Kein Greenwashing	,45	,241	,326	-,23	1,13
	reines Greenwashing	,39	,228	,402	-,25	1,03
	Greenwashing + Bild	,84*	,238	,006	,18	1,51

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,086.

*. Die mittlere Differenz ist auf dem ,05-Niveau signifikant.

Table 70: Post-hoc Test, (non) fact based degree

nicht faktenbezogen - faktenbezogen

Scheffé^{a,b,c}

Gruppe	N	Untergruppe	
		1	2
Greenwashing + Bild	69	3,03	
Kein Greenwashing	66	3,42	3,42
reines Greenwashing	81	3,48	3,48
Greenwashing + Fakt	79		3,87
Sig.		,311	,318

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,086.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet.

Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 71: homogenic groups, (non) fact based degree

Deskriptive Statistiken

Abhängige Variable: wenig emotional - hoch emotional

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	3,50	1,808	66
reines Greenwashing	3,38	1,593	81
Greenwashing + Bild	4,29	1,800	69
Greenwashing + Fakt	3,47	1,616	79
Gesamt	3,64	1,728	295

Table 72: non emotional to emotional based Likert Scale per Group, M and SD

Tests der Zwischensubjekteffekte

Abhängige Variable: wenig emotional - hoch emotional

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	38,118 ^a	3	12,706	4,404	,005	,043
Konstanter Term	3922,486	1	3922,486	1359,655	,000	,824
Gruppe	38,118	3	12,706	4,404	,005	,043
Fehler	839,510	291	2,885			
Gesamt	4795,000	295				
Korrigierte Gesamtvariation	877,627	294				

a. R-Quadrat = ,043 (korrigiertes R-Quadrat = ,034)

Table 73: Significance Test, (non) emotional based grade difference among all groups

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: wenig emotional - hoch emotional

F	df1	df2	Sig.
,591	3	291	,621

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 74: Levene Test, (non) emotional based

Gesamtmittelwert

Abhängige Variable: wenig emotional - hoch emotional

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
3,660	,099	3,465	3,856

Table 75: estimated marginal mean, (non) emotional based

Multiple Comparisons

Abhängige Variable: wenig emotional - hoch emotional

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Greenwashing	,12	,282	,982	-,67	,91
	Greenwashing + Bild	-,79	,292	,065	-1,61	,03
	Greenwashing + Fakt	,03	,283	1,000	-,76	,83
reines Greenwashing	Kein Greenwashing	-,12	,282	,982	-,91	,67
	Greenwashing + Bild	-,91 [*]	,278	,015	-1,69	-,12
	Greenwashing + Fakt	-,09	,269	,992	-,84	,67
Greenwashing + Bild	Kein Greenwashing	,79	,292	,065	-,03	1,61
	reines Greenwashing	,91 [*]	,278	,015	,12	1,69
	Greenwashing + Fakt	,82 [*]	,280	,037	,03	1,61
Greenwashing + Fakt	Kein Greenwashing	-,03	,283	1,000	-,83	,76
	reines Greenwashing	,09	,269	,992	-,67	,84
	Greenwashing + Bild	-,82 [*]	,280	,037	-1,61	-,03

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,885.

*. Die mittlere Differenz ist auf dem ,05-Niveau signifikant.

Table 76: Post-hoc Test, (non) emotional based degree

wenig emotional - hoch emotional

Scheffé^{a,b,c}

Gruppe	N	Untergruppe	
		1	2
reines Greenwashing	81	3,38	
Greenwashing + Fakt	79	3,47	
Kein Greenwashing	66	3,50	
Greenwashing + Bild	69		4,29
Sig.		,982	1,000

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,885.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet.

Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 77: homogenic groups, (non) emotional based degree

Result data

Deskriptive Statistiken

Abhängige Variable: greenwash_idx

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	4,2045	1,45966	66
reines Greenwashing	4,6080	1,33226	81
Greenwashing + Bild	4,8261	1,31682	69
Greenwashing + Fakt	4,7658	1,30785	79
Gesamt	4,6110	1,36502	295

Table 78: Greenwashing Detection within different conditions

Tests der Zwischensubjekteffekte

Abhängige Variable: greenwash_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	15,990 ^a	3	5,330	2,917	,035	,029
Konstanter Term	6198,283	1	6198,283	3391,615	,000	,921
Gruppe	15,990	3	5,330	2,917	,035	,029
Fehler	531,812	291	1,828			
Gesamt	6819,938	295				
Korrigierte Gesamtvariation	547,802	294				

a. R-Quadrat = ,029 (korrigiertes R-Quadrat = ,019)

Table 79: Greenwashing Detection Overall Group Difference Significance Test

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

F	df1	df2	Sig.
,438	3	291	,726

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 80: Greenwashing Detection overall Group Difference Levine Test

Gesamtmittelwert

Abhängige Variable: greenwash_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,601	,079	4,446	4,757

Table 81: estimated marginal mean, greenwashing detection

Multiple Comparisons

Abhängige Variable: greenwash_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Greenwashing	-,4035	,22417	,358	-1,0338	,2269
	Greenwashing + Bild	-,6215	,23276	,070	-1,2760	,0330
	Greenwashing + Fakt	-,5613	,22544	,105	-1,1952	,0726
reines Greenwashing	Kein Greenwashing	,4035	,22417	,358	-,2269	1,0338
	Greenwashing + Bild	-,2181	,22147	,809	-,8408	,4047
	Greenwashing + Fakt	-,1578	,21376	,909	-,7589	,4433
Greenwashing + Bild	Kein Greenwashing	,6215	,23276	,070	-,0330	1,2760
	reines Greenwashing	,2181	,22147	,809	-,4047	,8408
	Greenwashing + Fakt	,0603	,22275	,995	-,5661	,6866
Greenwashing + Fakt	Kein Greenwashing	,5613	,22544	,105	-,0726	1,1952
	reines Greenwashing	,1578	,21376	,909	-,4433	,7589
	Greenwashing + Bild	-,0603	,22275	,995	-,6866	,5661

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,828.

Table 82: Greenwashing Detection Likeliness Post-Hoc Test

greenwash_idx

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	66	4,2045
reines Greenwashing	81	4,6080
Greenwashing + Fakt	79	4,7658
Greenwashing + Bild	69	4,8261
Sig.		,054

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,828.

- Verwendet Stichprobengrößen des harmonischen Mittels = 73,195
- Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.
- Alpha = ,05

Table 83: homogenic greenwashing detection over all conditions

Deskriptive Statistiken

Abhängige Variable: Wasser_evaluation_idx

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	4,0303	1,26073	66
reines Greenwashing	4,1759	1,15342	81
Greenwashing + Bild	4,1594	1,08463	69
Greenwashing + Fakt	4,2595	1,14245	79
Gesamt	4,1619	1,15685	295

Table 84: descriptive statistics brand image in different conditions_ Mount Franklin

Gesamtmittelwert

Abhängige Variable: Wasser_evaluation_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,156	,068	4,023	4,290

Table 85: estimated marginal mean_brand image Mount Franklin

Tests der Zwischensubjekteffekte

Abhängige Variable: Wasser_evaluation_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	1,912 ^a	3	,637	,474	,701	,005
Konstanter Term	5057,724	1	5057,724	3758,932	,000	,928
Gruppe	1,912	3	,637	,474	,701	,005
Fehler	391,547	291	1,346			
Gesamt	5503,188	295				
Korrigierte Gesamtvariation	393,458	294				

a. R-Quadrat = ,005 (korrigiertes R-Quadrat = -,005)

Table 86: Mount Franklin Overall Group Brand Image Difference Significance Test

Levene-Test auf Gleichheit der

Fehlervarianzen^a

Abhängige Variable: Wasser_evaluation_idx

F	df1	df2	Sig.
,528	3	291	,663

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 87: Mount Franklin Brand Image Difference, Levene Test

Multiple Comparisons

Abhängige Variable: Wasser_evaluation_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	-,1456	,19235	,902	-,6865	,3952
	Greenwashing + Bild	-,1291	,19972	,936	-,6907	,4325
	Greenwashing + Fakt	-,2292	,19344	,705	-,7731	,3147
reines Grrenwashing	Kein Greenwashing	,1456	,19235	,902	-,3952	,6865
	Greenwashing + Bild	,0165	,19003	1,000	-,5178	,5509
	Greenwashing + Fakt	-,0836	,18342	,976	-,5993	,4322
Greenwashing + Bild	Kein Greenwashing	,1291	,19972	,936	-,4325	,6907
	reines Grrenwashing	-,0165	,19003	1,000	-,5509	,5178
	Greenwashing + Fakt	-,1001	,19113	,965	-,6375	,4374
Greenwashing + Fakt	Kein Greenwashing	,2292	,19344	,705	-,3147	,7731
	reines Grrenwashing	,0836	,18342	,976	-,4322	,5993
	Greenwashing + Bild	,1001	,19113	,965	-,4374	,6375

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,346.

Table 88: Mount Franklin Brand Image Post-Hoc Test

Wasser_evaluation_idx

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	66	4,0303
Greenwashing + Bild	69	4,1594
reines Grrenwashing	81	4,1759
Greenwashing + Fakt	79	4,2595
Sig.		,699

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,346.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 89: Mount Franklin Brand Image _homogenic subgroups

Deskriptive Statistiken

Abhängige Variable: Joghurt_evaluation_idx

Gruppe	Mittelwert	Standardabweichung	N
--------	------------	--------------------	---

Kein Greenwashing	4,5568	1,46550	66
reines Grrenwashing	4,5556	1,28877	81
Greenwashing + Bild	4,5870	1,27319	69
Greenwashing + Fakt	4,6646	1,24929	79
Gesamt	4,5924	1,31066	295

Table 90: descriptive statistics brand image in different conditions_ Skyr

Gesamtmittelwert

Abhängige Variable: Joghurt_evaluation_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,591	,077	4,440	4,742

Table 91: estimated marginal mean_ Brand Image Skyr

Tests der Zwischensubjekteffekte

Abhängige Variable: Joghurt_evaluation_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	,607 ^a	3	,202	,117	,950	,001
Konstanter Term	6170,972	1	6170,972	3559,905	,000	,924
Gruppe	,607	3	,202	,117	,950	,001
Fehler	504,438	291	1,733			
Gesamt	6726,563	295				
Korrigierte Gesamtvariation	505,045	294				

a. R-Quadrat = ,001 (korrigiertes R-Quadrat = -,009)

Table 92: Skyr Overall Group Brand Image Difference Significance Test

Levene-Test auf Gleichheit der

Fehlervarianzen^a

Abhängige Variable: Joghurt_evaluation_idx

F	df1	df2	Sig.
,952	3	291	,416

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 93: Skyr _Overall Group Brand Image Difference, Levene Test

Multiple Comparisons

Abhängige Variable: Joghurt_evaluation_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	,0013	,21832	1,000	-,6126	,6152
	Greenwashing + Bild	-,0301	,22669	,999	-,6676	,6073
	Greenwashing + Fakt	-,1077	,21956	,971	-,7251	,5097
reines Grrenwashing	Kein Greenwashing	-,0013	,21832	1,000	-,6152	,6126
	Greenwashing + Bild	-,0314	,21569	,999	-,6379	,5751
	Greenwashing + Fakt	-,1090	,20819	,965	-,6944	,4764
Greenwashing + Bild	Kein Greenwashing	,0301	,22669	,999	-,6073	,6676
	reines Grrenwashing	,0314	,21569	,999	-,5751	,6379
	Greenwashing + Fakt	-,0776	,21695	,988	-,6876	,5324
Greenwashing + Fakt	Kein Greenwashing	,1077	,21956	,971	-,5097	,7251
	reines Grrenwashing	,1090	,20819	,965	-,4764	,6944
	Greenwashing + Bild	,0776	,21695	,988	-,5324	,6876

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,733.

Table 94: Skyr Brand Image Post-Hoc Test

Joghurt_evaluation_idx

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
reines Grrenwashing	81	4,5556
Kein Greenwashing	66	4,5568
Greenwashing + Bild	69	4,5870
Greenwashing + Fakt	79	4,6646
Sig.		,969

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,733.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 95: Skyr_homogenic subgroups

Deskriptive Statistiken

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	2,47	1,730	66
reines Greenwashing	2,84	1,608	81
Greenwashing + Bild	2,67	1,771	69
Greenwashing + Fakt	2,76	1,741	79
Gesamt	2,69	1,707	295

Table 96: descriptive statistics purchase intention in different conditions_ water bottle

Gesamtmittelwert

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
2,684	,100	2,487	2,881

Table 97: estimated marginal mean_purchase intention Water Bottle

Tests der Zwischensubjekteffekte

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	5,426 ^a	3	1,809	,618	,604	,006
Konstanter Term	2108,909	1	2108,909	721,044	,000	,712
Gruppe	5,426	3	1,809	,618	,604	,006
Fehler	851,117	291	2,925			
Gesamt	2999,000	295				
Korrigierte Gesamtvariation	856,542	294				

a. R-Quadrat = ,006 (korrigiertes R-Quadrat = -,004)

Table 98: Water Bottle Overall Group Purchase Intention Difference Significance Test

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

F	df1	df2	Sig.
,767	3	291	,513

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 99: Water Bottle Purchase Intention: Overall Group Difference, Levene Test

Multiple Comparisons

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Greenwashing	-,37	,284	,637	-1,17	,43
	Greenwashing + Bild	-,20	,294	,930	-1,02	,63
	Greenwashing + Fakt	-,29	,285	,793	-1,09	,51
reines Greenwashing	Kein Greenwashing	,37	,284	,637	-,43	1,17
	Greenwashing + Bild	,17	,280	,944	-,61	,96
	Greenwashing + Fakt	,08	,270	,993	-,68	,84
Greenwashing + Bild	Kein Greenwashing	,20	,294	,930	-,63	1,02
	reines Greenwashing	-,17	,280	,944	-,96	,61
	Greenwashing + Fakt	-,09	,282	,991	-,89	,70
Greenwashing + Fakt	Kein Greenwashing	,29	,285	,793	-,51	1,09
	reines Greenwashing	-,08	,270	,993	-,84	,68
	Greenwashing + Bild	,09	,282	,991	-,70	,89

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,925.

Table 100: Purchase Intention Post-Hoc Test Water Bottle

sehr unwahrscheinlich - sehr wahrscheinlich

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	66	2,47
Greenwashing + Bild	69	2,67
Greenwashing + Fakt	79	2,76
reines Greenwashing	81	2,84
Sig.		,635

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 2,925.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 101: Water bottle_homogenic subgroups

Deskriptive Statistiken

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Gruppe	Mittelwert	Standardabweichung	N
Kein Greenwashing	3,44	2,091	66
reines Grrenwashing	3,54	1,754	81
Greenwashing + Bild	3,33	1,930	69
Greenwashing + Fakt	3,67	2,005	79
Gesamt	3,51	1,936	295

Table 102: descriptive statistics purchase intention in different conditions_yoghurt

Gesamtmittelwert

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
3,497	,113	3,273	3,720

Table 103: estimated marginal mean_purchase intention yoghurt

Tests der Zwischensubjekteffekte

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	4,610 ^a	3	1,537	,408	,748	,004
Konstanter Term	3579,831	1	3579,831	949,503	,000	,765
Gruppe	4,610	3	1,537	,408	,748	,004
Fehler	1097,133	291	3,770			
Gesamt	4726,000	295				
Korrigierte Gesamtvariation	1101,742	294				

a. R-Quadrat = ,004 (korrigiertes R-Quadrat = -,006)

Table 104: Yoghurt Purchase Intention: Overall Group Difference Significance Test

**Levene-Test auf Gleichheit der
Fehlervarianzen^a**

Abhängige Variable: sehr unwahrscheinlich - sehr
wahrscheinlich

F	df1	df2	Sig.
1,857	3	291	,137

Prüft die Nullhypothese, daß die Fehlervarianz der
abhängigen Variablen über Gruppen hinweg
gleich ist.

a. Design: Konstanter Term + Gruppe

Table 105: Yoghurt Purchase Intention: Overall Group Difference Levene Test

Multiple Comparisons

Abhängige Variable: sehr unwahrscheinlich - sehr wahrscheinlich

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	-,10	,322	,991	-1,01	,80
	Greenwashing + Bild	,11	,334	,992	-,83	1,05
	Greenwashing + Fakt	-,23	,324	,916	-1,14	,68
reines Grrenwashing	Kein Greenwashing	,10	,322	,991	-,80	1,01
	Greenwashing + Bild	,21	,318	,933	-,68	1,10
	Greenwashing + Fakt	-,13	,307	,982	-,99	,74
Greenwashing + Bild	Kein Greenwashing	-,11	,334	,992	-1,05	,83
	reines Grrenwashing	-,21	,318	,933	-1,10	,68
	Greenwashing + Fakt	-,34	,320	,774	-1,24	,56
Greenwashing + Fakt	Kein Greenwashing	,23	,324	,916	-,68	1,14
	reines Grrenwashing	,13	,307	,982	-,74	,99
	Greenwashing + Bild	,34	,320	,774	-,56	1,24

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 3,770.

Table 106: Yoghurt Purchase Intention Post-Hoc Test

sehr unwahrscheinlich - sehr wahrscheinlich

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
Greenwashing + Bild	69	3,33
Kein Greenwashing	66	3,44
reines Grrenwashing	81	3,54
Greenwashing + Fakt	79	3,67
Sig.		,776

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 3,770.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 107: yoghurt_homogenic subgroups

Zwischensubjektfaktoren			
		Wertelabel	N
Gruppe	1,00	Kein Greenwashing	66
	2,00	reines Greenwashing	81
	3,00	Greenwashing + Bild	69
	4,00	Greenwashing + Fakt	79
env_know_2group	1,00	niedriges Wissen	135
	2,00	hohes Wissen	160

Table 108: Greenwashing Detection with two factors knowledge and group

Zwischensubjektfaktoren				
Gruppe			Wertelabel	N
Kein Greenwashing	env_know_2group	1,00	niedriges Wissen	34
		2,00	hohes Wissen	32
reines Greenwashing	env_know_2group	1,00	niedriges Wissen	39
		2,00	hohes Wissen	42
Greenwashing + Bild	env_know_2group	1,00	niedriges Wissen	27
		2,00	hohes Wissen	42

Greenwashing + Fakt	env_know_2group	1,00	niedriges Wissen	35
		2,00	hohes Wissen	44

Table 109: Greenwashing Detection with two factors knowledge and group detailed view

Deskriptive Statistiken

Abhängige Variable: greenwash_idx

Gruppe	env_know_2group	Mittelwert	Standardabweichung	N
Kein Greenwashing	niedriges Wissen	3,8824	1,57181	34
	hohes Wissen	4,5469	1,26593	32
	Gesamt	4,2045	1,45966	66
reines Greenwashing	niedriges Wissen	4,1795	1,27211	39
	hohes Wissen	5,0060	1,27534	42
	Gesamt	4,6080	1,33226	81
Greenwashing + Bild	niedriges Wissen	4,7130	1,34397	27
	hohes Wissen	4,8988	1,31021	42
	Gesamt	4,8261	1,31682	69
Greenwashing + Fakt	niedriges Wissen	4,7500	1,12132	35
	hohes Wissen	4,7784	1,45196	44
	Gesamt	4,7658	1,30785	79
Gesamt	niedriges Wissen	4,3593	1,36713	135
	hohes Wissen	4,8234	1,33076	160
	Gesamt	4,6110	1,36502	295

Table 110: Mean Values Greenwashing Detection per group and related to knowledge level

Gesamtmittelwert

Abhängige Variable: greenwash_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,594	,079	4,440	4,749

Table 111: estimated marginal mean, group effect on greenwashing detection with knowledge level as second factor

Tests der Zwischensubjekteffekte

Abhängige Variable: greenwash_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	37,666 ^a	7	5,381	3,027	,004	,069
Konstanter Term	6078,168	1	6078,168	3419,547	,000	,923
Gruppe	14,686	3	4,895	2,754	,043	,028
env_know_2group	13,083	1	13,083	7,361	,007	,025
Gruppe * env_know_2group	8,209	3	2,736	1,539	,204	,016
Fehler	510,136	287	1,777			
Gesamt	6819,938	295				
Korrigierte Gesamtvariation	547,802	294				

a. R-Quadrat = ,069 (korrigiertes R-Quadrat = ,046)

Table 112: Knowledge - Overall Group greenwashing detection Difference Significance Test with group and knowledge as fixed factors

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

F	df1	df2	Sig.
,380	7	287	,913

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe +

env_know_2group + Gruppe * env_know_2group

Table 113: Knowledge - Overall Group greenwashing detection Difference, Levene Test – group effect with knowledge as fixed factors

Multiple Comparisons

Abhängige Variable: greenwash_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	-,4035	,22108	,345	-1,0252	,2182
	Greenwashing + Bild	-,6215	,22955	,064	-1,2671	,0240
	Greenwashing + Fakt	-,5613	,22233	,097	-1,1865	,0640
reines Grrenwashing	Kein Greenwashing	,4035	,22108	,345	-,2182	1,0252
	Greenwashing + Bild	-,2181	,21841	,802	-,8323	,3962
	Greenwashing + Fakt	-,1578	,21082	,905	-,7506	,4351
Greenwashing + Bild	Kein Greenwashing	,6215	,22955	,064	-,0240	1,2671
	reines Grrenwashing	,2181	,21841	,802	-,3962	,8323
	Greenwashing + Fakt	,0603	,21968	,995	-,5575	,6780
Greenwashing + Fakt	Kein Greenwashing	,5613	,22233	,097	-,0640	1,1865
	reines Grrenwashing	,1578	,21082	,905	-,4351	,7506
	Greenwashing + Bild	-,0603	,21968	,995	-,6780	,5575

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,777.

Table 114: Greenwashing Detection Likeliness Post-Hoc Test, with group and knowledge as fixed factors

greenwash_idx

Scheffé^{a,b,c}

Gruppe	N	Untergruppe	
		1	2
Kein Greenwashing	66	4,2045	
reines Grrenwashing	81	4,6080	4,6080
Greenwashing + Fakt	79	4,7658	4,7658
Greenwashing + Bild	69		4,8261
Sig.		,093	,806

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,777.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet.

Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 115: homogenic subgroups with group and knowledge as fixed factors

Highly informed consumers

Gesamtmittelwert^a

Abhängige Variable: greenwash_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,808	,106	4,598	5,017

a. env_know_2group = hohes Wissen

Table 116: estimated marginal mean greenwashing detection_highly informed consumers

Tests der Zwischensubjekteffekte^a

Abhängige Variable: greenwash_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	4,174 ^b	3	1,391	,783	,505	,015
Konstanter Term	3639,843	1	3639,843	2046,919	,000	,929
Gruppe	4,174	3	1,391	,783	,505	,015
Fehler	277,400	156	1,778			
Gesamt	4004,063	160				
Korrigierte Gesamtvariation	281,575	159				

a. env_know_2group = hohes Wissen

b. R-Quadrat = ,015 (korrigiertes R-Quadrat = -,004)

Table 117: Significance Test for Difference in greenwashing Detection over all conditions in total_highly informed consumer

Levene-Test auf Gleichheit der Fehlervarianzen^{a,b}

Abhängige Variable: greenwash_idx

F	df1	df2	Sig.
,093	3	156	,964

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. env_know_2group = hohes Wissen

b. Design: Konstanter Term + Gruppe

Table 118: Levene Test, Difference in GW Detection over all conditions in total_highly informed consumer

Multiple Comparisons^a

Abhängige Variable: greenwash_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	-,4591	,31290	,543	-1,3434	,4253
	Greenwashing + Bild	-,3519	,31290	,738	-1,2363	,5324
	Greenwashing + Fakt	-,2315	,30981	,906	-1,1071	,6441
reines Grrenwashing	Kein Greenwashing	,4591	,31290	,543	-,4253	1,3434
	Greenwashing + Bild	,1071	,29099	,987	-,7153	,9296
	Greenwashing + Fakt	,2275	,28767	,890	-,5855	1,0406
Greenwashing + Bild	Kein Greenwashing	,3519	,31290	,738	-,5324	1,2363
	reines Grrenwashing	-,1071	,29099	,987	-,9296	,7153
	Greenwashing + Fakt	,1204	,28767	,981	-,6926	,9334
Greenwashing + Fakt	Kein Greenwashing	,2315	,30981	,906	-,6441	1,1071
	reines Grrenwashing	-,2275	,28767	,890	-1,0406	,5855
	Greenwashing + Bild	-,1204	,28767	,981	-,9334	,6926

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,778. ^a

a. env_know_2group = hohes Wissen

Table 119: Greenwashing Detection Likeliness Post-Hoc Test, highly informed consumers

greenwash_idx^a

Scheffé^{b,c,d}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	32	4,5469
Greenwashing + Fakt	44	4,7784
Greenwashing + Bild	42	4,8988
reines Grrenwashing	42	5,0060
Sig.		,508

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) =

1,778.^a

a. env_know_2group = hohes Wissen

b. Verwendet Stichprobengrößen des harmonischen Mittels = 39,372

c. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

d. Alpha = ,05

Table 120: homogenic greenwashing detection over all conditions, highly informed consumers

Poorly informed consumers

Gesamtmittelwert^a

Abhängige Variable: greenwash_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,381	,116	4,152	4,610

a. env_know_2group = niedriges Wissen

Table 121: estimated marginal mean greenwashing detection_ poorly informed consumers

Tests der Zwischensubjekteffekte^a

Abhängige Variable: greenwash_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	17,715 ^b	3	5,905	3,324	,022	,071
Konstanter Term	2545,297	1	2545,297	1432,670	,000	,916
Gruppe	17,715	3	5,905	3,324	,022	,071
Fehler	232,736	131	1,777			
Gesamt	2815,875	135				
Korrigierte Gesamtvariation	250,451	134				

a. env_know_2group = niedriges Wissen

b. R-Quadrat = ,071 (korrigiertes R-Quadrat = ,049)

Table 122: Significance Test for Difference in GW Detection over all conditions in total_ poorly informed consumer

Levene-Test auf Gleichheit der

Fehlervarianzen^{a,b}

Abhängige Variable: greenwash_idx

F	df1	df2	Sig.
,818	3	131	,486

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. env_know_2group = niedriges Wissen

b. Design: Konstanter Term + Gruppe

Table 123: Levene Test, Greenwashing Detection over all conditions in total_ poorly informed consumer

Multiple Comparisons^a

Abhängige Variable: greenwash_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Greenwashing	-,2971	,31274	,825	-1,1829	,5886
	Greenwashing + Bild	-,8306	,34359	,125	-1,8037	,1425
	Greenwashing + Fakt	-,8676	,32096	,068	-1,7767	,0414
reines Greenwashing	Kein Greenwashing	,2971	,31274	,825	-,5886	1,1829
	Greenwashing + Bild	-,5335	,33370	,468	-1,4786	,4116
	Greenwashing + Fakt	-,5705	,31035	,341	-1,4495	,3084
Greenwashing + Bild	Kein Greenwashing	,8306	,34359	,125	-,1425	1,8037
	reines Greenwashing	,5335	,33370	,468	-,4116	1,4786
	Greenwashing + Fakt	-,0370	,34141	1,000	-1,0040	,9299
Greenwashing + Fakt	Kein Greenwashing	,8676	,32096	,068	-,0414	1,7767
	reines Greenwashing	,5705	,31035	,341	-,3084	1,4495
	Greenwashing + Bild	,0370	,34141	1,000	-,9299	1,0040

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,777.^a

a. env_know_2group = niedriges Wissen

Table 124: Greenwashing Detection Likelihood Post-Hoc Test, poorly informed consumers

greenwash_idx^a

Scheffé^{b,c,d}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	34	3,8824
reines Greenwashing	39	4,1795
Greenwashing + Bild	27	4,7130
Greenwashing + Fakt	35	4,7500
Sig.		,076

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,777.^a

a. env_know_2group = niedriges Wissen

b. Verwendet Stichprobengrößen des harmonischen Mittels = 33,151

c. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

d. Alpha = ,05

Table 125: homogenic greenwashing detection over all conditions, poorly informed consumers

Tests der Zwischensubjekteffekte

Abhängige Variable: greenwash_idx

Gruppe	Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Kein Greenwashing	Korrigiertes Modell	7,280 ^a	1	7,280	3,551	,064	,053
	Konstanter Term	1171,280	1	1171,280	571,316	,000	,899
	env_know_2group	7,280	1	7,280	3,551	,064	,053
	Fehler	131,209	64	2,050			
	Gesamt	1305,250	66				
	Korrigierte Gesamtvariation	138,489	65				
reines Grrenwashing	Korrigiertes Modell	13,813 ^b	1	13,813	8,513	,005	,097
	Konstanter Term	1706,195	1	1706,195	1051,567	,000	,930
	env_know_2group	13,813	1	13,813	8,513	,005	,097
	Fehler	128,180	79	1,623			
	Gesamt	1861,938	81				
	Korrigierte Gesamtvariation	141,992	80				
Greenwashing + Bild	Korrigiertes Modell	,568 ^c	1	,568	,324	,571	,005
	Konstanter Term	1518,347	1	1518,347	866,921	,000	,928
	env_know_2group	,568	1	,568	,324	,571	,005
	Fehler	117,345	67	1,751			
	Gesamt	1725,000	69				
	Korrigierte Gesamtvariation	117,913	68				
Greenwashing + Fakt	Korrigiertes Modell	,016 ^d	1	,016	,009	,924	,000
	Konstanter Term	1769,842	1	1769,842	1021,558	,000	,930
	env_know_2group	,016	1	,016	,009	,924	,000
	Fehler	133,402	77	1,732			
	Gesamt	1927,750	79				
	Korrigierte Gesamtvariation	133,418	78				

a. R-Quadrat = ,053 (korrigiertes R-Quadrat = ,038)

b. R-Quadrat = ,097 (korrigiertes R-Quadrat = ,086)

c. R-Quadrat = ,005 (korrigiertes R-Quadrat = -,010)

d. R-Quadrat = ,000 (korrigiertes R-Quadrat = -,013)

Table 126: Significance Test in which Group Greenwashing Detection differs depending on the Green Knowledge Level & Group

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

Gruppe	F	df1	df2	Sig.
Kein Greenwashing	,742	1	64	,392
reines Grrenwashing	,024	1	79	,877
Greenwashing + Bild	,000	1	67	,995
Greenwashing + Fakt	,475	1	77	,493

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + env_know_2group

Table 127: Levene Test, Group & Knowledge Level Effect on Greenwashing Detection

Gesamtmittelwert

Abhängige Variable: greenwash_idx

Gruppe	Mittelwert	Standardfehler	95%-Konfidenzintervall	
			Untergrenze	Obergrenze
Kein Greenwashing	4,215	,176	3,862	4,567
reines Grrenwashing	4,593	,142	4,311	4,875
Greenwashing + Bild	4,806	,163	4,480	5,132
Greenwashing + Fakt	4,764	,149	4,467	5,061

Table 128: estimated marginal means, Group & Knowledge Level Effect on Greenwashing Detection

Environmental Concern

Deskriptive Statistiken

Abhängige Variable: greenwash_idx

Gruppe	environmentalconcern_idx(Klassiert)	Mittelwert	Standardabweichung	N
Kein Greenwashing	niedrige concern	3,5588	1,26889	34
	hoch	4,8906	1,34545	32
	Gesamt	4,2045	1,45966	66
reines Grrenwashing	niedrige concern	4,3478	1,24552	46
	hoch	4,9500	1,38240	35
	Gesamt	4,6080	1,33226	81
Greenwashing + Bild	niedrige concern	4,7237	1,30977	38
	hoch	4,9516	1,33607	31
	Gesamt	4,8261	1,31682	69
Greenwashing + Fakt	niedrige concern	4,5556	1,23846	45
	hoch	5,0441	1,36303	34
	Gesamt	4,7658	1,30785	79
Gesamt	niedrige concern	4,3282	1,32011	163
	hoch	4,9602	1,34322	132
	Gesamt	4,6110	1,36502	295

Table 129: descriptive statistics greenwashin detection_environmental concern

Gesamtmittelwert

Abhängige Variable: greenwash_idx

Mittelwert	Standardfehler	95%-Konfidenzintervall	
		Untergrenze	Obergrenze
4,628	,077	4,477	4,779

Table 130: estimated marginal mean, greenwashing detection in relation to environmental concern level

Tests der Zwischensubjekteffekte

Abhängige Variable: greenwash_idx

Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Korrigiertes Modell	57,946 ^a	7	8,278	4,850	,000	,106
Konstanter Term	6196,969	1	6196,969	3630,725	,000	,927
Gruppe	16,023	3	5,341	3,129	,026	,032
environmentalconcern_2 groups	31,761	1	31,761	18,609	,000	,061
Gruppe * environmentalconcern_2 groups	11,255	3	3,752	2,198	,088	,022
Fehler	489,855	287	1,707			
Gesamt	6819,938	295				
Korrigierte Gesamtvariation	547,802	294				

a. R-Quadrat = ,106 (korrigiertes R-Quadrat = ,084)

Table 131: Significance Test, Environmental Concern - Overall Group Difference

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

F	df1	df2	Sig.
,134	7	287	,996

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe + environmentalconcern_2groups + Gruppe * environmentalconcern_2groups

Table 132: greenwashing detection with group & environment concern as fixed factor, Levene Test

Multiple Comparisons

Abhängige Variable: greenwash_idx

Scheffé

(I) Gruppe	(J) Gruppe	Mittlere Differenz (I-J)	Standardfehler	Sig.	95%-Konfidenzintervall	
					Untergrenze	Obergrenze
Kein Greenwashing	reines Grrenwashing	-,4035	,21664	,327	-1,0127	,2057
	Greenwashing + Bild	-,6215	,22494	,056	-1,2541	,0110
	Greenwashing + Fakt	-,5613	,21787	,087	-1,1740	,0514
reines Grrenwashing	Kein Greenwashing	,4035	,21664	,327	-,2057	1,0127
	Greenwashing + Bild	-,2181	,21403	,792	-,8199	,3838
	Greenwashing + Fakt	-,1578	,20658	,900	-,7387	,4231
Greenwashing + Bild	Kein Greenwashing	,6215	,22494	,056	-,0110	1,2541
	reines Grrenwashing	,2181	,21403	,792	-,3838	,8199
	Greenwashing + Fakt	,0603	,21527	,994	-,5451	,6656
Greenwashing + Fakt	Kein Greenwashing	,5613	,21787	,087	-,0514	1,1740
	reines Grrenwashing	,1578	,20658	,900	-,4231	,7387
	Greenwashing + Bild	-,0603	,21527	,994	-,6656	,5451

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,707.

Table 133: Greenwashing Detection Likelihood Post-Hoc Test, Environmental Concern

greenwash_idx

Scheffé^{a,b,c}

Gruppe	N	Untergruppe	
		1	2
Kein Greenwashing	66	4,2045	
reines Grrenwashing	81	4,6080	4,6080
Greenwashing + Fakt	79	4,7658	4,7658
Greenwashing + Bild	69		4,8261
Sig.		,083	,797

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,707.

a. Verwendet Stichprobengrößen des harmonischen Mittels =

73,195

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet.

Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 134: homogenic subgroups - GW detection, environmental concern

Zwischensubjektfaktoren

environmentalconcern_idx(Klassiert)			Wertelabel	N
niedrige concern	Gruppe	1,00	Kein Greenwashing	34

		2,00	reines Grrenwashing	46
		3,00	Greenwashing + Bild	38
		4,00	Greenwashing + Fakt	45
hoch	Gruppe	1,00	Kein Greenwashing	32
		2,00	reines Grrenwashing	35
		3,00	Greenwashing + Bild	31
		4,00	Greenwashing + Fakt	34

Table 135: high & low concerned participants

Zwischensubjektfaktoren

Gruppe		Wertelabel	N
Kein Greenwashing	environmentalconcern_idx(Kl 1 assiert)	niedrige concern	34
	2	hoch	32
reines Grrenwashing	environmentalconcern_idx(Kl 1 assiert)	niedrige concern	46
	2	hoch	35
Greenwashing + Bild	environmentalconcern_idx(Kl 1 assiert)	niedrige concern	38
	2	hoch	31
Greenwashing + Fakt	environmentalconcern_idx(Kl 1 assiert)	niedrige concern	45
	2	hoch	34

Table 136: high & low concerned participants 2

Deskriptive Statistiken

Abhängige Variable: greenwash_idx

environmentalconcern_idx(K lassiert)	Gruppe	Mittelwert	Standardabweic hung	N
niedrige concern	Kein Greenwashing	3,5588	1,26889	34
	reines Grrenwashing	4,3478	1,24552	46
	Greenwashing + Bild	4,7237	1,30977	38
	Greenwashing + Fakt	4,5556	1,23846	45

	Gesamt	4,3282	1,32011	163
hoch	Kein Greenwashing	4,8906	1,34545	32
	reines Grrenwashing	4,9500	1,38240	35
	Greenwashing + Bild	4,9516	1,33607	31
	Greenwashing + Fakt	5,0441	1,36303	34
	Gesamt	4,9602	1,34322	132

Table 137: descriptive statistics greenwashing detection per group and per concern level

Deskriptive Statistiken

Abhängige Variable: greenwash_idx

Gruppe	environmentalconcern_idx(K lassiert)	Mittelwert	Standardabweic hung	N
Kein Greenwashing	niedrige concern	3,5588	1,26889	34
	hoch	4,8906	1,34545	32
	Gesamt	4,2045	1,45966	66
reines Grrenwashing	niedrige concern	4,3478	1,24552	46
	hoch	4,9500	1,38240	35
	Gesamt	4,6080	1,33226	81
Greenwashing + Bild	niedrige concern	4,7237	1,30977	38
	hoch	4,9516	1,33607	31
	Gesamt	4,8261	1,31682	69
Greenwashing + Fakt	niedrige concern	4,5556	1,23846	45
	hoch	5,0441	1,36303	34
	Gesamt	4,7658	1,30785	79

Table 138: descriptive statistics greenwashing detection per group and per concern level different visualisation

Gesamtmittelwert

Abhängige Variable: greenwash_idx

environmentalconcern_idx(K lassiert)	Mittelwert	Standardfehler	95%-Konfidenzintervall	
			Untergrenze	Obergrenze
niedrige concern	4,296	,100	4,099	4,493
hoch	4,959	,118	4,725	5,193

Table 139: estimated marginal mean greenwashing detection_highly & poorly concerned consumers

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

environmentalconcern_idx(K lassiert)	F	df1	df2	Sig.
niedrige concern	,153	3	159	,928
hoch	,067	3	128	,978

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + Gruppe

Table 140: Levene Test for highly and poorly concerned consumers

Tests der Zwischenssubjekteffekte							
Abhängige Variable: greenwash_idx							
environmentalconcern_id x(Klassiert)	Quelle	Quadratsum me vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta- Quadrat
niedrige concern	Korrigiertes Modell	28,413 ^a	3	9,471	5,931	,001	,101
	Konstanter Term	2962,765	1	2962,765	1855,361	,000	,921
	Gruppe	28,413	3	9,471	5,931	,001	,101
	Fehler	253,902	159	1,597			
	Gesamt	3335,875	163				
	Korrigierte Gesamtvariation	282,315	162				
hoch	Korrigiertes Modell	,400 ^b	3	,133	,072	,975	,002
	Konstanter Term	3238,760	1	3238,760	1756,962	,000	,932
	Gruppe	,400	3	,133	,072	,975	,002
	Fehler	235,953	128	1,843			
	Gesamt	3484,063	132				
	Korrigierte Gesamtvariation	236,354	131				

a. R-Quadrat = ,101 (korrigiertes R-Quadrat = ,084)

b. R-Quadrat = ,002 (korrigiertes R-Quadrat = -,022)

Table 141: Significance Test for Difference in Greenwashing Detection over all groups and high& low concerned consumer

Multiple Comparisons							
Abhängige Variable: greenwash_idx							
Scheffé							
environmentalconcern_id x(Klassiert)	(I)Gruppe	(J)Gruppe	Mittlere Differenz (I-J)	Standardfehle r	Sig.	95%-Konfidenzintervall	
						Untergrenze	Obergrenze
niedrige concern	Kein Greenwashing	reines Ggreenwashing	-,7890	,28580	,058	-1,5966	,0186
		Greenwashing + Bild	-1,1649*	,29831	,002	-2,0078	-,3219
		Greenwashing + Fakt	-,9967*	,28715	,009	-1,8081	-,1854
	reines Ggreenwashing	Kein Greenwashing	,7890	,28580	,058	-,0186	1,5966
		Greenwashing + Bild	-,3759	,27702	,607	-1,1586	,4069
		Greenwashing + Fakt	-,2077	,26495	,893	-,9564	,5409
	Greenwashing + Bild	Kein Greenwashing	1,1649*	,29831	,002	,3219	2,0078
		reines Ggreenwashing	,3759	,27702	,607	-,4069	1,1586
		Greenwashing + Fakt	,1681	,27840	,947	-,6185	,9548
	Greenwashing + Fakt	Kein Greenwashing	,9967*	,28715	,009	,1854	1,8081
		reines Ggreenwashing	,2077	,26495	,893	-,5409	,9564
		Greenwashing + Bild	-,1681	,27840	,947	-,9548	,6185
hoch	Kein Greenwashing	reines Ggreenwashing	-,0594	,33208	,998	-1,0002	,8814
		Greenwashing + Bild	-,0610	,34215	,998	-1,0303	,9084
		Greenwashing + Fakt	-,1535	,33440	,976	-1,1009	,7939
	reines Ggreenwashing	Kein Greenwashing	,0594	,33208	,998	-,8814	1,0002
		Greenwashing + Bild	-,0016	,33486	1,000	-,9503	,9471
		Greenwashing + Fakt	-,0941	,32693	,994	-1,0203	,8321
	Greenwashing + Bild	Kein Greenwashing	,0610	,34215	,998	-,9084	1,0303
		reines Ggreenwashing	,0016	,33486	1,000	-,9471	,9503
		Greenwashing + Fakt	-,0925	,33717	,995	-1,0477	,8627
	Greenwashing + Fakt	Kein Greenwashing	,1535	,33440	,976	-,7939	1,1009
		reines Ggreenwashing	,0941	,32693	,994	-,8321	1,0203
		Greenwashing + Bild	,0925	,33717	,995	-,8627	1,0477

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,843.

*. Die mittlere Differenz ist auf dem ,05-Niveau signifikant.

Table 142: Greenwashing Detection Likelihood Post-Hoc Test, high & low concerned consumers

environmentalconcern_idx(Klassiert)=niedrige concern

Scheffé^{a,b,c}

Gruppe	N	Untergruppe	
		1	2
Kein Greenwashing	34	3,5588	
reines Grrenwashing	46	4,3478	4,3478
Greenwashing + Fakt	45		4,5556
Greenwashing + Bild	38		4,7237
Sig.		,054	,621

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,597.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 40,125

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen verwendet.

Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 143: homogenic greenwashing detection over all conditions, low concerned consumers

environmentalconcern_idx(Klassiert)=hoch

Scheffé^{a,b,c}

Gruppe	N	Untergruppe
		1
Kein Greenwashing	32	4,8906
reines Grrenwashing	35	4,9500
Greenwashing + Bild	31	4,9516
Greenwashing + Fakt	34	5,0441
Sig.		,976

Mittelwerte für Gruppen in homogenen Untergruppen werden angezeigt.

Grundlage: beobachtete Mittelwerte.

Der Fehlerterm ist Mittel der Quadrate(Fehler) = 1,843.

a. Verwendet Stichprobengrößen des harmonischen Mittels = 32,924

b. Die Größen der Gruppen ist ungleich. Es wird das harmonische Mittel der Größe der Gruppen

verwendet. Fehlerniveaus für Typ I werden nicht garantiert.

c. Alpha = ,05

Table 144: homogenic greenwashing detection over all conditions, high concerned consumers

Tests der Zwischensubjekteffekte

Abhängige Variable: greenwash_idx

Gruppe	Quelle	Quadratsumme vom Typ III	df	Mittel der Quadrate	F	Sig.	Partielles Eta-Quadrat
Kein Greenwashing	Korrigiertes Modell	29,239 ^a	1	29,239	17,129	,000	,211
	Konstanter Term	1176,906	1	1176,906	689,449	,000	,915
	environmentalconcern_2groups	29,239	1	29,239	17,129	,000	,211
	Fehler	109,250	64	1,707			
	Gesamt	1305,250	66				
	Korrigierte Gesamtvariation	138,489	65				
reines Grrenwashing	Korrigiertes Modell	7,208 ^b	1	7,208	4,224	,043	,051
	Konstanter Term	1718,319	1	1718,319	1007,140	,000	,927
	environmentalconcern_2groups	7,208	1	7,208	4,224	,043	,051
	Fehler	134,785	79	1,706			
	Gesamt	1861,938	81				
	Korrigierte Gesamtvariation	141,992	80				
Greenwashing + Bild	Korrigiertes Modell	,887 ^c	1	,887	,508	,479	,008
	Konstanter Term	1598,177	1	1598,177	914,991	,000	,932
	environmentalconcern_2groups	,887	1	,887	,508	,479	,008
	Fehler	117,026	67	1,747			
	Gesamt	1725,000	69				
	Korrigierte Gesamtvariation	117,913	68				
Greenwashing + Fakt	Korrigiertes Modell	4,623 ^d	1	4,623	2,764	,100	,035
	Konstanter Term	1784,749	1	1784,749	1067,012	,000	,933
	environmentalconcern_2groups	4,623	1	4,623	2,764	,100	,035
	Fehler	128,795	77	1,673			
	Gesamt	1927,750	79				
	Korrigierte Gesamtvariation	133,418	78				

a. R-Quadrat = ,211 (korrigiertes R-Quadrat = ,199)

b. R-Quadrat = ,051 (korrigiertes R-Quadrat = ,039)

c. R-Quadrat = ,008 (korrigiertes R-Quadrat = -,007)

d. R-Quadrat = ,035 (korrigiertes R-Quadrat = ,022)

Table 145: Significance Test in which Group Greenwashing Detection differs depending on the Concern

Levene-Test auf Gleichheit der Fehlervarianzen^a

Abhängige Variable: greenwash_idx

Gruppe	F	df1	df2	Sig.
Kein Greenwashing	,024	1	64	,878
reines Grrenwashing	,536	1	79	,466
Greenwashing + Bild	,067	1	67	,797
Greenwashing + Fakt	,160	1	77	,690

Prüft die Nullhypothese, daß die Fehlervarianz der abhängigen Variablen über Gruppen hinweg gleich ist.

a. Design: Konstanter Term + environmentalconcern_2groups

Table 146: Levene Test, Group & Concern Level Effect on Greenwashing Detection

Gesamtmittelwert

Abhängige Variable: greenwash_idx

Gruppe	Mittelwert	Standardfehler	95%-Konfidenzintervall
--------	------------	----------------	------------------------

			Untergrenze	Obergrenze
Kein Greenwashing	4,225	,161	3,903	4,546
reines Greenwashing	4,649	,146	4,357	4,940
Greenwashing + Bild	4,838	,160	4,518	5,157
Greenwashing + Fakt	4,800	,147	4,507	5,092

Table 147: estimated marginal means, Group & Concern Level Effect on Greenwashing Detection

Korrelationen						
		sehr unwahrscheinlich - sehr wahrscheinlich	sehr unwahrscheinlich - sehr wahrscheinlich	greenwash_idx	Wasser_evaluation_idx	Joghurt_evaluation_idx
sehr unwahrscheinlich - sehr wahrscheinlich	Korrelation nach Pearson	1	,590**	-,265**	,527**	,372**
	Signifikanz (2-seitig)		,000	,000	,000	,000
	N	295	295	295	295	295
sehr unwahrscheinlich - sehr wahrscheinlich	Korrelation nach Pearson	,590**	1	-,257**	,359**	,626**
	Signifikanz (2-seitig)	,000		,000	,000	,000
	N	295	295	295	295	295
greenwash_idx	Korrelation nach Pearson	-,265**	-,257**	1	-,224**	-,265**
	Signifikanz (2-seitig)	,000	,000		,000	,000
	N	295	295	295	295	295
Wasser_evaluation_idx	Korrelation nach Pearson	,527**	,359**	-,224**	1	,532**
	Signifikanz (2-seitig)	,000	,000	,000		,000
	N	295	295	295	295	295
Joghurt_evaluation_idx	Korrelation nach Pearson	,372**	,626**	-,265**	,532**	1
	Signifikanz (2-seitig)	,000	,000	,000	,000	
	N	295	295	295	295	295

** . Die Korrelation ist auf dem Niveau von 0,01 (2-seitig) signifikant.

Table 148: Correlation Matrix Greenwash Detection & purchase intention/ brand image

Questionnaire

Figure 32: Questionnaire

Anzeigeeoptionen

Info: Hier können Sie optional die Anzeigeeoptionen verändern. Wenn Sie eine Sprache auswählen, die keine eigenen Textelemente hat, werden die Textelemente der Standardsprache angezeigt.

Anzeigeeoptionen einstellen:

- ☒ Anzeigeeoptionen mit ausdrucken
- ☐ Interne Verlinkungen einblenden
- ☐ Filter anzeigen
- ☐ Trigger anzeigen
- ☐ Plausichcks anzeigen
- ☐ Randomisierung von Antwortoptionen anschalten
- ☐ Pretest-Kommentare anzeigen
- ☐ Todos anzeigen

Sprache Deutsch ▼

Einstellungen speichern

Informationen zur Umfrage Magisterarbeit_Unger

Umfrage-Nr.	442123
Autor	Brigitte Naderer
Co-Autoren	
Start	20.12.2017 00:00:00
Ende	12.02.2018 00:00:00

Fragebogen

1 Startseite

Liebe Teilnehmenden,

ich freue mich, dass Sie an dieser wissenschaftlichen Studie für meine Magisterarbeit am Institut für Publizistik- und Kommunikationswissenschaft der Universität Wien teilnehmen!

Bei dieser Studie geht es um Ihre Meinung zu Umweltschutz und grünen Produkten. Unter "grünen Produkten" versteht man beispielsweise biologische Nahrungsmittel, umweltfreundlich produzierte Artikel und energiesparende oder wiederverwertbare Produkte.

Alle Angaben werden anonym behandelt.

Ich bitte Sie den Fragebogen nicht einem Muster folgend (immer 1, immer 5 zB.) auszufüllen, sondern genau zu lesen und zu antworten.

Die Befragung wird etwa 8-10 Minuten dauern.

Vielen Dank für Ihre Unterstützung!

2 Environmental Concern

Zu Beginn folgen einige allgemeine Standpunkte und Dinge, die im Leben mehr oder weniger wichtig oder erstrebenswert sein können.

Bitte geben Sie an, inwiefern die folgenden Aussagen auf Sie persönlich zutreffen.

Antworten Sie bitte auf einer Skala von 1 (stimme überhaupt nicht zu) bis 7 (stimme voll und ganz zu).

	1 stimme überhaupt nicht zu	2	3	4	5	6	7 stimme voll und ganz zu
Ich bin bereit Opfer zu bringen, um die Umwelt zu schützen.	☐	☐	☐	☐	☐	☐	☐
Ich Sorge mich um die Umwelt.	☐	☐	☐	☐	☐	☐	☐
Der Zustand der Umwelt beeinflusst meine Lebensqualität.	☐	☐	☐	☐	☐	☐	☐
Ich unterstütze politische Interessenverbände oder Parteien bei deren gesellschaftlichem Engagement.	☐	☐	☐	☐	☐	☐	☐
Ich nutze regelmäßig Medien, um mich über gesellschaftlich relevante Themen zu informieren.	☐	☐	☐	☐	☐	☐	☐

3 Green Buying

Die nächsten Fragen beschäftigen sich mit grünen Produkten. Darunter versteht man beispielsweise biologische Nahrungsmittel, umweltschonend produzierte Artikel und energiesparende oder wiederverwertbare Produkte.

Bitte geben Sie an, inwiefern die folgenden Aussagen auf Sie persönlich zutreffen.

Antworten Sie bitte auf einer Skala von 1 (stimme überhaupt nicht zu) bis 7 (stimme voll und ganz zu).

	1 stimme überhaupt nicht zu	2	3	4	5	6	7 stimme voll und ganz zu
Ich habe schon einmal der Umwelt zuliebe zu anderen Produkten gewechselt.	☐	☐	☐	☐	☐	☐	☐
Wenn ich die Wahl zwischen zwei gleichwertigen Produkten habe, kaufe ich das, welches der Umwelt und anderen Menschen weniger schadet.	☐	☐	☐	☐	☐	☐	☐
Ich betreibe besonderen Aufwand, um Produkte in biologisch abbaubarer Verpackung zu kaufen.	☐	☐	☐	☐	☐	☐	☐
Ich wäre bereit umweltfreundliche Putzmittel zu kaufen, selbst wenn diese zu einer geringeren Sauberkeit führen als herkömmliche Marken.	☐	☐	☐	☐	☐	☐	☐
Ich mag es, grüne Produkte zu kaufen.	☐	☐	☐	☐	☐	☐	☐
Der Kauf grüner Produkte ist zu bevorzugen.	☐	☐	☐	☐	☐	☐	☐

4 Grünes Wissen

Im Folgenden kommen einige Fragen zu grünen Produkten. Bitte geben Sie an, welche Antwort Ihrer Meinung nach am Zutreffendsten ist. Wenn Sie nicht ganz sicher sind, antworten Sie einfach spontan aus dem Bauch heraus.

Welche der genannten Methoden des Fischfangs ist aus ökologischen Gründen abzulehnen?

- ☐ Grundschnellnetz
- ☐ Angelschnur
- ☐ Reuse (kegelförmige Netzschräume)
- ☐ Weiß nicht, keine Angabe

Bio-Freiland-Eier erkennt man an der Kontrollnummer (Stempel am Ei). Hinter welcher der folgenden Nummern steckt ein echtes Bio-Freiland-Ei?

- ☐ 0-AT-3254411
- ☐ 1-AT-3254411
- ☐ 2-AT-3254411
- ☐ Weiß nicht, keine Angabe

Sie sehen vier Gütesiegel für organische Textilien. Welches davon garantiert eine firmenunabhängige Kontrolle?

- ☐
- ☐
- ☐
- ☐
- ☐ Weiß nicht, keine Angabe

Ökostrom bezeichnet die Erzeugung von elektrischer Energie aus erneuerbaren Energiequellen. Woraus wird kein Ökostrom gewonnen?

- ☐ Deponie- und Klärgas
- ☐ Gasförmige Biomasse
- ☐ Erdgas
- ☐ Weiß nicht, keine Angabe

Von welcher Art der Umweltverschmutzung sind Meeresbewohner derzeit am stärksten bedroht?

- ☐ Plastikmüll
- ☐ Ölbohrungen
- ☐ Kreuzfahrts-Tourismus
- ☐ Weiß nicht, keine Angabe

Welche der folgenden Produkte können nicht recycled werden?

(Mehrfachnennung möglich)

- ☐ Magazine, Kataloge, und Bücher
- ☐ Zeitungen
- ☐ Batterie
- ☐ Energiesparende Glühlampen
- ☐ Plastikflasche
- ☐ Weiß nicht, keine Angabe

Welches der folgenden Lebensmittel hat derzeit Saison (Jan-Feb)?

- ☐ Karotten
- ☐ Broccoli
- ☐ Gurken
- ☐ Weiß nicht, keine Angabe

5 Anweisung Sujet

Als nächstes sehen Sie zwei Werbeanzeige (Mineralwasser & Joghurt).
Das Anzeigenbild wird mind. 4 Sekunden lang angezeigt. Achten Sie bitte
auf die Details und lesen Sie die Argumente genau durch.

6.1.1 Mineral_KG



Schluck für Schluck ein Genuss.
Reines Quellwasser - Erfrischend einfach

6.1.2 Joghurt_KG



6.2.1 Mineral_GW



Schluck für Schluck für die Natur
Natürlicher Genuss in der umweltfreundlichsten Flasche

6.2.2 Joghurt_GW



6.3.1 Joghurt_A



6.3.2 Mineral_A



6.4.1 Joghurt_C



6.4.2 Mineral_C



7 Perceived Greenwashing

Die nächsten Fragen beschäftigen sich mit Ihren Gedanken während des Betrachtens der Aussagen der Anzeigen.

Als ich die beiden Anzeigen betrachtet habe, habe ich gedacht...

Antworten Sie bitte auf einer Skala von 1 (stimme überhaupt nicht zu) bis 7 (stimme voll und ganz zu).

	1 stimme überhaupt nicht zu	2	3	4	5	6	7 stimme voll und ganz zu
Der Text der Anzeigen über die umweltfreundlichen Eigenschaften der Produkte ist irreführend.	☐	☐	☐	☒	☐	☐	☐
Die Anzeigen sind aufgrund ihrer grafischen und bildlichen Elemente irreführend.	☐	☐	☐	☒	☐	☐	☐
Die Anzeigen übertreiben den Nutzen der Produkte für die Umwelt.	☐	☐	☐	☒	☐	☐	☐
Die Anzeigen stellen die Produkte als nützlicher für die Umwelt dar, als sie es sind.	☐	☐	☐	☒	☐	☐	☐

8 Virtual Nature Experience

Im Folgenden kommen einige Aussagen zur Einschätzung der gesehenen Anzeigen.

Bitte geben Sie an, inwiefern die folgenden Aussagen auf Sie persönlich zutreffen.

Antworten Sie bitte auf einer Skala von 1 (stimme überhaupt nicht zu) bis 7 (stimme voll und ganz zu).

	1 stimme überhaupt nicht zu	2	3	4	5	6	7 stimme voll und ganz zu
Die beiden Anzeigen gaben mir das Gefühl, nahe an der Natur zu sein.	☐	☐	☒	☐	☐	☐	☐
Die beiden Anzeigen ließen mich an Natur, Felder, Wälder und Berge denken.	☐	☐	☒	☐	☐	☐	☐
Die beiden Anzeigen erweckten in mir das Gefühl, in der Natur zu sein.	☐	☐	☒	☐	☐	☐	☐
Die beiden Marken die in den Anzeigen beworben wurden, helfen die Umwelt zu schützen.	☐	☐	☒	☐	☐	☐	☐
Durch den Kauf der beiden Marken die in den Anzeigen beworben wurden, kann ich anderen Menschen zeigen, dass mir die Umwelt wichtig ist.	☐	☐	☒	☐	☐	☐	☐
Eine Wasserflasche von Mount Franklin, sowie ein Joghurt von Skyr ist besser für die Umwelt als andere Wasserflaschen bzw. Joghurts.	☐	☐	☒	☐	☐	☐	☐

Nun möchten wir Sie bitten, die gesehenen Anzeigen zu bewerten. Versuchen Sie bitte möglichst spontan zu antworten. Geben Sie bitte einfach Ihren ersten Eindruck an.

schlecht gemacht ○ ○ ○ ○ ○ ○ ○ gut gemacht

unangenehm ○ ○ ○ ○ ○ ○ ○ angenehm

nicht überzeugend ○ ○ ○ ○ ○ ○ ○ überzeugend

negativ ○ ○ ○ ○ ○ ○ ○ **positiv**

9 Bewertung Marke

Wie würden Sie die Marke aus der gezeigten Anzeige bewerten? Versuchen Sie bitte möglichst spontan zu antworten. Wenn Sie die gezeigte Marke noch nicht kannten, geben Sie trotzdem einfach Ihren ersten Eindruck an.



Bitte schätzen Sie die Marke Mount Franklin anhand der aufgelisteten Eigenschaften ein.

unattraktiv ○ ○ ○ ○ ○ ○ attraktiv

unsympathisch ○ ○ ○ ○ ○ ○ ○ sympathisch

negativ ○ ○ ○ ○ ○ ○ **positiv**

nicht empfehlenswert ○ ○ ○ ○ ○ ○ ○ empfehlenswert

Könnten Sie sich vorstellen, in näherer Zukunft eine Wasserflasche der Marke Mount Franklin zu kaufen? Für wie wahrscheinlich würden Sie dies einschätzen?

sehr unwahrscheinlich ○ ○ ○ ○ ○ ○ sehr wahrscheinlich

Wie würden Sie die Marke aus der gezeigten Anzeige bewerten? Versuchen Sie bitte möglichst spontan zu antworten. Wenn Sie die gezeigte Marke noch nicht kannten, geben Sie trotzdem einfach Ihren ersten Eindruck an.



unattraktiv ○ ○ ○ ○ ○ ○ attraktiv

unsympathisch ○ ○ ○ ○ ○ ○ ○ sympathisch

negativ ○ ○ ○ ○ ○ ○ positiv

Könnten Sie sich vorstellen, in näherer Zukunft ein Joghurt der Marke Skyr zu kaufen? Für wie wahrscheinlich würden Sie dies einschätzen?

sehr unwahrscheinlich ☐ ☐ ☐ ☐ ☐ ☐ ☐ sehr wahrscheinlich

10 Manipulation Check Seite

Wie würden Sie die Gestaltung der gezeigten Anzeigen beurteilen?

nicht faktenbezogen ☐ ☐ ☐ ☐ ☐ ☐ ☐ faktenbezogen

wenig emotional ☐ ☐ ☐ ☐ ☐ ☐ ☐ hoch emotional

Wurde in der Anzeige für das Mineralwasser eine Prozentzahl gezeigt? Wenn nein, tragen Sie 0 ein. Wenn ja, tragen Sie bitte den jeweiligen %-Wert ein!

(z.B. 10 für 10%)

%

Wurde in der Anzeige für den Joghurt eine Prozentzahl gezeigt? Wenn nein, tragen Sie 0 ein. Wenn ja, tragen Sie bitte den jeweiligen %-Wert ein!

(z.B. 10 für 10%)

%

Welches Motiv war in der Anzeige für das Mineralwasser am Hintergrundfoto zu sehen?

Falls keines der genannten Hintergrundmotive zu sehen war, selektieren Sie "neutrales Hintergrundbild".

- ☐ Tiere
- ☐ Alm + Berg
- ☐ Bergsee
- ☐ Menschen
- ☐ neutrales Hintergrundbild (Farbverlauf, Symbole, etc.)

Welches Motiv war in der Anzeige für den Joghurt am Hintergrundfoto zu sehen?

Falls keines der genannten Hintergrundmotive zu sehen war, selektieren Sie "neutrales Hintergrundbild".

- ☐ Tiere
- ☐ Alm + Berg
- ☐ Bergsee
- ☐ Menschen
- ☐ neutrales Hintergrundbild (Farbverlauf, Symbole, etc.)

11 Demographie

Zum Abschluss möchte ich Sie noch bitten, einige Angaben zu Ihrer Person zu machen.

Geschlecht:

- ☐ weiblich
- ☐ männlich

Alter (in Jahren):

Was ist Ihre höchste abgeschlossene Ausbildung?

- ☐ Allgemeinbildende Pflichtschule
- ☐ Lehrlingsausbildung, berufsbildende mittlere Schule
- ☐ Matura (AHS, BHS)
- ☐ Hochschulverwandte Ausbildung (Akademie, Kolleg)
- ☐ Universität, Fachhochschule

Wenn Sie das monatliche Einkommen Ihres Haushaltes aus allen Quellen zusammen zählen, welcher Buchstabe aus nachfolgender Liste trifft auf das Nettoeinkommen pro Monat Ihres Haushaltes zu?

Falls Sie die genau Zahl nicht kennen: Bitte geben Sie eine ungefähre Schätzung an.

- ☐ A Weniger als 1.000 Euro
- ☐ B zwischen 1.000 € und 1.500 €
- ☐ C zwischen 1.500 € und 2.000 €
- ☐ D zwischen 2.000 € und 2.500 €
- ☐ E zwischen 2.500 € und 3.000 €
- ☐ F zwischen 3.000 € und 3.500 €
- ☐ G zwischen 3.500 € und 4.000 €
- ☐ H zwischen 4.000 € und 4.500 €
- ☐ I zwischen 4.500 € und 5.000 €
- ☐ J zwischen 5.000 € und 5.500 €
- ☐ K zwischen 5.500 € und 6.000 €
- ☐ L zwischen 6.000 € und 6.500 €
- ☐ M zwischen 6.500 € und 7.000 €
- ☐ N mehr als 7.000 €
- ☐ keine Angabe

Ich schätze meine Naturverbundenheit folgendermaßen ein:

sehr gering ☐ ☐ ☐ ☐ ☐ ☐ ☐ sehr groß

Ich habe die Studie auf folgendem Gerät beantwortet:

- ☐ Mobiltelefon
- ☐ Tablet
- ☐ PC/Laptop

12 Mail

Haben Sie noch Anmerkungen zu dieser Studie?

Falls Sie über die Studienergebnisse informiert werden möchten, geben Sie bitte hier noch Ihre E-Mail Adresse an.
Hinweis: Ihre E-Mail Adresse wird nicht mit Ihren Antworten in Verbindung gebracht und nicht für andere Zwecke verwendet.

13 Endseite

Sie haben es geschafft! Vielen Dank, dass Sie mich bei meiner Masterarbeit unterstützt haben.

Beste Grüße,
Nina Unger

6.3 ABSTRACT

6.3.1 Abstract English Version

Being eco-friendly sells. Marketers are aware of that and often try to make brands and products greener. An association between the product and sustainability and resource saving procedures shall be created.

Companies that engage in greenwashing are well aware of the potential of green capitalism. It in a way it shifts responsibility away from companies and governments towards consumers. Consumers are the ones, as companies claim, who have the option to choose what to buy. The problem of green capitalism is that it still treats the environment as an externality. Something that is owned by human and can be traded like any other good (Lubbers 2002; Tokar 1997). Greenwashing is the enemy of “real green” products as it may inhibit the purchase of green products in total (Kilbourne 1995).

Via an online based experimental study (N=295) with for stimuli conditons a 70 persons, German and Austrian study participants with a good mix in age, gender and education were asked to complete an online questionnaire. The aim of this study was to analyze how likely it is that consumers detect greenwashing, if emotional or cognitive cues play a moderating role and how green knowledge or environmental concern influence greenwashing detection likeliness. Further, the effect of emotional cues and cognitive cues on brand image and purchase intention were measured. No significant effects of emotional or cognitive cues could be detected on greenwashing detection, brand image or purchase intention. The importance of green knowledge and environmental concern and its effects on greenwashing detection was analyzed.

6.3.2 Abstract German Version

Umweltbewusster und ressourcenschonender Konsum liegt im Trend der Zeit. Die Marketingexperten von heute sind sich diesem Trend bewusst und versuchen die Marktbreite und Kundentreue auszubauen, indem Produkte und Marken „grüner“ dargestellt werden als sie eigentlich sind.

Diese Praxis nennt sich „Greenwashing“ und stellt eine ernstzunehmende „Bedrohung“ für das an sich positive Umdenken der Konsumenten hin zu bewussterem Konsum dar. „Greenwashing“ führt zur Verunsicherung, sodass Konsumenten dazu tendieren grüne Produkten vollständig zu meiden (Kilbourne 1995).

Innerhalb einem online durchgeführten Experiments (N=295) mit vier verschiedenen Stimuligruppen a 70 Personen wurden österreichische, sowie deutsche Studienteilnehmen einem Fragebogen unterzogen.

Ziel der Studie war es zu analysieren wie schwer Konsumenten „Greenwashing“ erkennen, inwiefern sich emotionale oder kognitive Elemente moderierend auswirken und welchen Einfluss grünes Wissen und Umweltbewusstsein haben. Weiters wurden die Effekte von emotionalen, sowie kognitiven Elementen auf Kaufabsicht und Markenbild getestet.

Es konnte kein signifikanter moderierender Effekt bezogen auf die Erkennung von „Greenwashing“, noch auf die Kaufabsicht oder das Markenbild von emotionalen oder kognitiven Elementen gemessen werden.

Dass grünes Wissen und Umweltbewusstsein einen wichtigen Einfluss haben auf die Erkennung von „Greenwashing“ wird in der Studie aufgezeigt.