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**Persuasive communication to promote
health and the environment**

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Abstract

This dissertation investigates influencing factors of persuasion relating to messages aiming to promote healthy and pro-environmental behavior as well as outcomes of successful persuasive communication on individuals' health and the environment. Over the course of three empirical chapters, this dissertation demonstrates that matching individual and message-related factors of a persuasive message yields favorable responses – immediately following the message and after a delay. The first empirical chapter focuses on construal level of psychological distance (an individual factor) and the contextual framing of the message as either beneficial for one's health or the natural environment (a message factor). In an Implicit Association Test (N = 292), matching conditions are identified such that individuals show an automatic association of psychological distance and the environment as well as psychological closeness and health. The results of a subsequent experiment (N = 314) show that individuals' willingness to donate to a charity was highest when the focus of the charity (working around health or the natural environment) matched with their construal level. Across the two studies, no differences according to the four dimensions of psychological distance (temporal, spatial, social, hypothetical) were found. Building on reactance theory, the second empirical chapter examines the effects of matching vs. mismatching the source of a message with individuals' pre-existing attitudes. In two experiments (N = 360 and N = 179), immediate agreement with the message was lowest in mismatching conditions. However, a sleeper effect (i.e., a delayed increase in persuasion) was observed after four weeks in mismatching conditions. Negative emotion after having read the message was found to explain the effect. The third empirical chapter focuses on the outcomes of persuasive communication on health and the environment. In a qualitative photovoice study in a vulnerable community (N = 18), South African township residents received a one-week persuasive training on gardening and were later allocated a community

garden bed to take care of for an indefinite time. The analysis of the photographs and subsequent interviews, conducted several months after the persuasive training, yields health benefits along the three health dimensions (physical, social, mental) as well as the emergence of a sense of responsibility for the environment through e.g., caring about waste and water issues in the community. In sum, the results of this dissertation support a differentiated view on persuasion based on individuals and message-related influencing factors. Particularly, it is suggested that matching individual factors (i.e., construal level and pre-existing attitudes) and message-related factors (i.e., contextual message framing and message source) results in greater persuasion. The studies provide meaningful guidance to researchers and practitioners in the field of promoting health and the environment.

Kurzfassung

Im Rahmen dieser Dissertation werden die Einflussfaktoren von Gesundheits- und Umweltkommunikation sowie die Auswirkungen erfolgreicher Kommunikation auf die Gesundheit und die Umwelt untersucht. Anhand drei empirischer Kapitel wird gezeigt, dass die Übereinstimmung (das ‚Matching‘) individueller und nachrichtenbezogener Faktoren einer Nachricht die größte Überzeugungskraft auf die Empfänger der Nachricht hat – sowohl unmittelbar im Anschluss an die Nachricht als auch nach einer zeitlichen Verzögerung. Das erste empirische Kapitel beschäftigt sich mit der Construal Level Theorie der psychologischen Distanz (als individuellem Faktor) und der kontextuellen Einbettung der Nachricht (als Nachrichtenfaktor). In einem Impliziten Assoziationstest (N = 292) wurden zunächst die Bedingungen des Matchings identifiziert, mit dem Ergebnis, dass die Versuchsteilnehmerinnen und -teilnehmer eine automatische Assoziation zwischen psychologischer Distanz und der Umwelt sowie psychologischer Nähe und Gesundheit haben. In einem darauf aufbauenden Experiment (N = 314) wurde gezeigt, dass die individuelle Bereitschaft für eine wohltätige Organisation zu spenden am höchsten ist, wenn die inhaltliche Ausrichtung der Wohltätigkeitsorganisation (als entweder gesundheits- oder umweltorientiert) in Übereinstimmung mit der aktivierten Ausprägung der psychologischen Distanz (Nähe oder Distanz) des einzelnen Individuums ist. In beiden Studien zeigte sich kein Unterschied zwischen den vier Dimensionen der psychologischen Distanz (zeitlich, räumlich, sozial, hypothetisch). Aufbauend auf der Reaktanztheorie untersucht das zweite empirische Kapitel die Auswirkungen des Matchings in Bezug auf den Sender einer Nachricht mit den vorbestehenden Einstellungen des Einzelnen. In zwei Experimenten (N = 360 und N = 179) stellte sich heraus, dass die sofortige Zustimmung zu einer Nachricht am geringsten war, wenn der Sender nicht zu den Voreinstellungen des Probanden passte. In diesen nicht übereinstimmenden Bedingungen wurde jedoch ein Sleeper-Effekt (d.h., ein verspäteter

Anstieg in der Zustimmung zu der Nachricht) nach vier Wochen beobachtet. Negative Emotionen im Anschluss an das Lesen der Nachricht erklären diese Effekte. Das dritte empirische Kapitel beschäftigt sich mit Auswirkungen erfolgreicher Überzeugungskommunikation zu den Themen Umwelt und Gesundheit. In einer qualitativen Photovoice Studie in einer sozial benachteiligten Untersuchungsgruppe (N = 18), erhielten Bewohner eines südafrikanischen Townships eine einwöchige theoretische Ausbildung zu Gartenanbau Themen (Fokus: Gemüse und Kräuter). Ihnen wurde im Anschluss an das Training ein eigenes Abteil in einem Gemeinschaftsgarten zur Bewirtschaftung zugeteilt. Die Analyse der Photographien und der darauffolgenden Interviews, die einige Monate nach der Ausbildung aufgenommen bzw. durchgeführt wurden, hat ergeben, dass die Informantinnen und Informanten sowohl positive Auswirkungen auf ihre Gesundheit (entlang der drei Gesundheitsdimensionen: physisch, sozial und psychologisch) sowie ein gesteigertes Verantwortlichkeitsgefühl in Bezug auf ihr natürliches Umfeld erlebten. Letzteres zeigte sich besonders in der Besorgnis und dem wachsenden Tatendrang in Bezug auf die Müll- und Wasserproblematik in der eigenen Gemeinde. Zusammenfassend unterstützen die Ergebnisse dieser Dissertation eine differenzierte Sichtweise auf die Einflussfaktoren von Überzeugungskommunikation, basierend auf der Analyse von individuellen und nachrichtenbasierten Faktoren. Im Speziellen wird angeregt, dass das Matching von individuellen Faktoren (hier: individuelles Construal Level und Voreinstellungen) und Nachrichtenfaktoren (hier: die kontextuelle Einbettung der Nachricht und der Sender der Nachricht) in größerer Zustimmung zu der Nachricht resultiert. Die Studien leisten einen substantiellen wissenschaftlichen Beitrag und dienen als Orientierungshilfe für die Praxis im Bereich der Gesundheits- und Umweltkommunikation.

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1 Introduction

1.1 Motivation and research questions

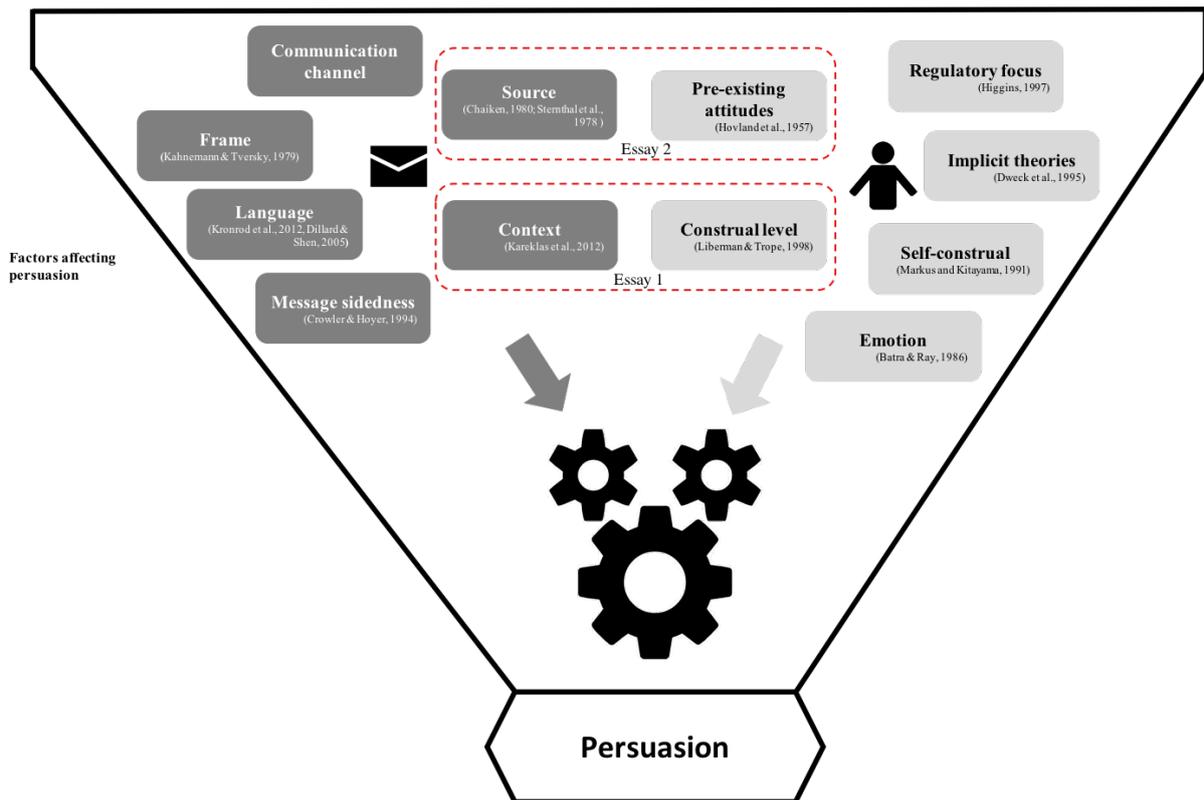
People worldwide use the beginning of each year to set new year's resolutions such as exercising more frequently, reducing the consumption of alcohol and tobacco, eating healthier or using less plastic, taking less trips by car and living more sustainably in general (Kennedy, 2018; Rosmarin, 2019). Apart from these rather spontaneous resolutions, living healthy and environmental-friendly are important life goals of many consumers. Given the exploding costs of health care as well as the increasing destruction of the planet, these topics have also emerged as urgent policy mandates. While consumers often fail to act according to their resolutions and goals (Mukhopadhyay & Johar, 2005), persuasive communication may help consumers reach these goals in the long run, by reminding them of their initial goals or of the importance of health and environmental concepts, for example.

Changing individuals' mental states, as a predecessor of behavioral change, is at the core of persuasion (O'Keefe, 2004). In the family, on the marketplace, at work: all these areas represent settings where decision making is shaped by communication underlining the pervasiveness of persuasion in human affairs in the past, today and in the future. Among the different mental states, attitudes (i.e., a person's evaluation of an object or event) gained the most attention in persuasion research since its beginnings. Historically, attitudes were considered the most essential concept and "*they have remained the bedrock of the discipline*" (Brinol & Petty, 2012, p. 285). Subsequent to understanding what shapes attitudes, research turned to understanding attitude change as an indicator of persuasion. While initially, single variables were thought to produce effects by single processes, the focus quickly moved towards the idea that each variable affects attitudes (and attitude change) by more than one

process and different variables influence each other when processing messages (Petty, 1997). In order to approach persuasion from an academic standpoint, the early work of Lasswell (1948) introduced the formula: “*Who says what in which channel to whom with what effect*” that serves as a basis for understanding (persuasive) communication until today (e.g., Schiffman & Wisenblit, 2015; Solomon, 2016).

Given the absence of an all-explaining theory on persuasion until now, in their cumulative work on persuasion, Dillard & Pfau (2002) suggest to include aspects of dissonance theory (Festinger, 1957), expectancy theory (Vroom, 1964), elaboration likelihood model (Petty & Cacioppo, 1986), theory of psychological reactance (Brehm, 1966), inoculation theory (McGuire, 1961b, 1961a) and the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), as well as specific factors such as affect and emotion (Batra & Ray, 2002), message features (Chaiken, 1980; Crowley & Hoyer, 1994; Kahneman & Tversky, 2007; Sternthal, Phillips, & Dholakia, 1978) and message contexts (Kareklas, Carlson, & Muehling, 2012) into understanding persuasion. Incorporating this perspective and building on these theories, I use a framework that distinguishes between message-related factors and individual factors. I focus on the interactive effects among these to grasp persuasion regarding health and the environment within this dissertation (see figure 1).

All persuasion attempts require designated messages to reach the target group(s). These messages may be of written or spoken nature and can be communicated using all types of media or face-to-face. The interrelationship of factors inherent to the message itself and factors inherent to the individual who is receiving and processing the message build the theoretical basis for this dissertation relating to persuasion on health and the environment.



Note: Dark grey boxes represent message-related factors while light grey boxes refer to individual factors

Figure 1: Overview on message-related and individual factors affecting persuasion.

Given the significance of health and the environment in consumers' life goals and the relevance and urgency of societally relevant topics on public policy agendas (World Health Organization, 2014), what is interesting to notice is that many behaviors address the two contextual aspects at the same time. For example, commuting by bike simultaneously has favorable effects on health and the environment. This multifinality indicates that a single mean such as consuming a product, attending an event, or performing a behavior is attached to several goals at the same time (Kruglanski et al., 2013).

Persuasive messages aiming at advertising behaviors that relate to health and the environment can emphasize one (or both) context(s) and individual message processing might differ according to the context used. Thereby, I attribute particular relevance to individuals' construal level (i.e., the mental representation of each target around them that shapes their

perception). While targets can be construed as abstract and distant or concrete and close by individuals (Liberman & Trope, 1998; Trope & Liberman, 2003; Trope, Liberman, & Wakslak, 2007), it is the representation of these targets that shapes individual persuasion experiences. In particular, I aim to explore the effects of framing a message as either beneficial for one's health or the natural environment depending on individuals' level of construal.

In a similar approach of matching message and individual factors, I aim to extend the source effect literature by exploring the interplay of the source of a message with individuals' pre-existing attitudes. In addition to the fact that all messages have in common that they have a sender or source (e.g., person or an organization), the source is attributed particular relevance in promoting health (e.g., Aldoory, Yaros, Prado, Roberts, & Briones, 2016; De Meulenaer, De Pelsmacker, & Dens, 2018; Dragojevic, Savage, Scott, & McGinnis, 2018; Jones & Sinclair, 2003) and the environment (e.g., Lord, 1994; Olsen, Slotegraaf, & Chandukala, 2014). Based on the traditional source effect literature (e.g., Chaiken, 1980; Wilson & Sherrell, 1993), it is broadly accepted that credible and well-liked sources result in higher persuasion. What remains unclear is how negative (i.e., non-credible, non-likable, dissimilar) message sources affect immediate and delayed persuasion, particularly depending on individuals' pre-existing attitudes towards the source. The present research will partly fill this void.

Often, individuals hold attitudes towards a given subject or person – even if they have never interacted with the object or person before. These pre-existing attitudes may either be based on own previous experience (Tax, Brown, & Chandrashekar, 1998) or interaction with others, such as friends, colleagues or media (Deutsch & Gerard, 1955). They shape how individuals process new information. Particularly, when (persuasive) messages are processed peripherally, individuals are likely to use heuristics in their evaluation of the message

(Chaiken, 1980): Confronting individuals with a message issued by a sender that they particularly like or dislike, makes it likely that they tend to use a likability heuristic in their evaluation of the message – attributing less or no emphasis on the message content (Chaiken, 1980; Eagly & Chaiken, 1993). Hence, pre-existing attitudes, in this case towards the sender of the message, may have a significant impact on persuasion.

Based on prior research and particularly the previous deliberations, persuasion seems to be dependent on a multitude of factors, which can be classified as relating to the message itself or the individual who is processing the message. Most importantly, it is the interplay of message-related and individual factors that determines the effect of a persuasive message in the end. Consequently, this dissertation addresses the following two research questions:

1. How do message-related and individual factors interplay in persuasive communication that aims to promote health or the environment?
2. What are potential outcomes of persuasive communication on health or the environment, and what are the mechanisms that increase these outcomes?

By addressing these research questions, this dissertation contributes to existing research by (1) adding to knowledge about matching processes in persuasion relating to health and pro-environmental communication (essay 1 and 2); (2) taking a time-sensitive perspective aiming at capturing immediate and delayed persuasion (essay 2 [longitudinal study] and 3 [long-term intervention study]); (3) exploring the effectiveness of persuasive communication on health and the environment for a particular vulnerable population (essay 3); and (4) uncovering the multifinality of health and the environment in promoting societally desirable behaviors (across all essays).

In this dissertation, the interplay of message-related and individual factors relating to societally relevant topics is investigated across three empirical essays: Health vs. pro-environmental charity support and product evaluation (essay 1), attitude change towards public policies (essay 2) and healthy food supply and the relationship with nature of vulnerable populations following a persuasive training session (essay 3). The following chapter gives an overview on the theoretical background on factors that affect persuasion. It focuses on message-related factors, especially the contextual framing of the message, the tone and the sender of the message, and individual factors, especially individuals' mental distance representation of an object as well as one's pre-existing attitudes.

1.2 Theoretical background

Due to the complexity of persuasion, it is not surprising that there is no all-explaining theory (Dillard & Pfau, 2002) but that, in order to understand persuasion, aspects from various theories need to be incorporated. Thereby, the effects of the interplay of message-related and individual factors on persuasion are at the core of this dissertation. While the following two paragraphs will provide the theoretical background for message-related factors and individual factors separately, the third paragraph will introduce existing research regarding matching message and individual factors.

1.2.1 Message-related factors of persuasive communication

Every person or organization aiming at persuading someone else through communication requires a message in order to do so. Thereby, the message can be varied along many parameters: Among others, one has to decide in which context the message shall be presented

(Griffioen, Lindhout, & Handgraaf, 2017; Kahneman & Tversky, 2007; Kareklas et al., 2012), whether a strong or soft tone shall be used (Dillard & Shen, 2005), and who shall act as source of the message (Chaiken, 1980).

Contextual framing of messages

Apart from the well-researched evaluative framing of messages as either positive or negative (Kahneman & Tversky, 2007; Levin & Gaeth, 1988; Meyerowitz & Chaiken, 1987), less attention has been paid to differences in the contextual framing of persuasive messages. Referring to “*what*” in Lasswell’s (1948) persuasion formula, the content of a message and the context in which it is presented is of crucial relevance. Given the multifinality of many societally relevant behaviors (i.e., a single mean such as consuming a product, attending an event, or performing a behavior is attached to several goals at the same time (Kruglanski et al., 2013), communicators may use one (or both) context(s).

As the aim of this dissertation is to investigate persuasion regarding societally desirable behaviors, I explore the effects of contextual framing on persuasion using the two contexts of health and the environment. Many behaviors obviously impact one’s health and the environment at the same time: biking for example increases one’s physical activity and is thus beneficial for one’s health while it saves fossil fuels and decreases congestion. Consuming fruits and vegetables has various health benefits (e.g., contribute to a healthy diet, boost the immune system). Alternatively, individuals might consume fruits and vegetables because of their benefits to the environment (e.g., the ability to reduce carbon dioxides when they replace meat or to reduce pollution and soil erosion in the case of organic produce).

Apart from the commonality of health and the environment, there are some noteworthy differences between the two contexts. Environmental communication often has a narrow

focus on the topic of climate change while health-related communication relates to a broader range of topics including prevention of diseases, physical activity, and nutrition (Griffioen et al., 2017). When focusing on framing an object or behavior as health-related, the associated costs and benefits are ascribed to the individual rather than to the society at large. When framed in terms of the environment, implications refer to the society at large compared to the individual, since costs and benefits are distributed among all members of the society. According to Chepesiuk (2007), the average level of knowledge about the two concepts appears to be disparate in the sense that individuals are more knowledgeable about health topics compared to environmental topics. This might be due to the fact that health outcomes are directly palpable by the individual compared to events relating to the environment. Previous research identified for example the effects of regular physical activity on depression and anxiety (Paluska & Schwenk, 2000) on positive mood and subjective well-being (Penedo & Dahn, 2005) as well as on blood pressure (Blair, Goodyear, & Gibbons, 1984) and on the risk of diabetes and coronary heart diseases (Bassuk & Manson, 2005) as directly perceptible outcomes of various healthy lifestyle activities. In contrast, pro-environmental actions such as recycling waste or reducing car usage take collective efforts and time to make the outcomes palpable (Böhm & Pfister, 2000).

Message source

Referring to “*who*” in Lasswell’s (1948) persuasion formula, the importance of the communicator’s character in understanding persuasion has been on agendas of psychologists, consumer behavior and communication researchers for many years (Chaiken, 1980; Lasswell, 1948; Sternthal et al., 1978). Source characteristics have the potential to emphasize message content (when messages are processed centrally) or detract from message content

(when messages are processed peripherally) (Chaiken, 1980; Wilson & Sherrell, 1993). In general, there is agreement that greater credibility (e.g., Dholakia & Sternthal, 1977), attractiveness (e.g., Chaiken, 1979) and ideological similarity (e.g., Woodside & Davenport, 1974) of the source lead to greater immediate persuasion.

Looking at persuasion over time, the sleeper effect explains changes from immediate to delayed persuasion levels (Hovland, Lumsdaine, & Sheffield, 1949). Broadly defined, the sleeper effect refers to a delayed increase in the impact of a persuasive message (Hovland et al., 1949). As the sleeper effect was coined in relation to the discounting cue hypothesis, it specifically relates to a change in persuasion over time in response to a discounting cue in the communication (typically, information about low credibility of the source at the end of a persuasive message). According to the theory, the immediate post message agreement decreases in comparison to a similar message without the discounting cue (message only control). Due to a dissociation with the discounting cue over time (i.e., a weaker association of the discounting cue with the message over time), delayed post message agreement is expected to rise as individuals rely to a greater extent on the persuasive message (and not the discounting cue) (Gruder, Cook, Hennigan, Flay, & Halamaj, 1978; Kumkale & Albarracín, 2004; Pratkanis, Leippe, Greenwald, & Baumgardner, 1988).

While a great amount of research on the sleeper effect dates back to the mid of the 20th century, more recent studies confirmed its relevance to modern (social) advertising settings (Foos, Keeling, & Keeling, 2016; Silvia, 2006). Particularly, Albarracín, Kumkale, & Vento (2017) have extended the discounting cue hypothesis such that credible sources (when presenting weak arguments) may cause a source-based sleeper effect such that delayed persuasion takes place primarily on the basis of the source information rather than the message arguments.

Threat to freedom

In addition to Lasswell's (1948) formula of understanding persuasion (*Who says what in which channel to whom with what effect*), I include the dimension of “*how*” the message is presented in terms of its tone. Deliberations about the tone of a message are based on reactance theory (Brehm & Brehm, 1981; Brehm, 1966), stating that persuasive communication may backfire when it contains a freedom threat to the individual (i.e., felt pressure towards change through influence attempts). Threats to freedom relate to the way the message is presented (i.e., the tone). Thereby, assertive and intense language may cause the perception of a freedom threat (Dillard & Shen, 2005; Kronrod, Grinstein, & Wathieu, 2012).

The perception of threats to freedom through strong and assertive message tones causes individuals to respond by efforts to restore their freedom. Thereby, reactance is the motivational force to re-establish freedoms that have been threatened. Reactant individuals show a “*negative change away from the position or behavior being advocated*” (Brehm & Brehm, 1981, p. 38). Under the condition that this change is greater than any change that would occur in response to similar messages without freedom-threatening cues, a boomerang effect occurs. This boomerang effect can be manifested in negative changes in attitudes towards the advocated subject or behavior (e.g., Dillard & Shen, 2005; Gruder, Cook, Hennigan, Flay, & Halamaj, 1978), lower agreement with the communicator (e.g., Silvia, 2006), lower attractiveness and smaller desire of the advocated subject or behavior (e.g., Brehm, Stires, Sensenig, & Shaban, 1966; Hammock & Brehm, 1966) or in unfavorable changes in the behavior itself (e.g., Heilman, 1976). Communicators are therefore well advised to consider the tone of their persuasive message when they want to avoid a boomerang effect.

1.2.2 Individual factors of persuasive communication

Going back to Lasswell's formula, I will now focus on the relevance of recipient characteristics of the message ("*to whom*"). Imagine two persons receiving the exact same persuasive message at the same date and time. While one might have the tendency to agree with the message, the other might be completely opposed to it. This discrepancy illustrates the relevance of including individual recipient characteristics into holistic research on persuasion (Briñol & Petty, 2005). Individual differences are manifold and include constructs such as motivations, goals, prior experiences and different knowledge levels. Within this dissertation, I have picked out two individual difference aspects: First, I will introduce the concept of individuals' construal level (i.e., the way they perceive and evaluate a persuasive message in terms of its abstractness) before I will focus on individuals' pre-existing attitudes (i.e., their original overall summary evaluation towards a target).

Mental representation of the target

According to construal level theory (Liberman & Trope, 1998; Trope & Liberman, 2003), individuals use different mental representations of targets around them for the perception, judgment, and prediction of these targets. In this context, targets may refer to objects, events, and behaviors. These mental representations are manifested in differences in the abstractness vs. concreteness of the target such that individuals with a high-level construal represent targets more abstractly and focus on the target's central attributes. In contrast, individuals with a low-level construal represent targets more concretely and focus on secondary, peripheral aspects instead (Trope et al., 2007). Thereby, the theory connects a target item's mental representation as abstract or concrete to how psychologically close or psychologically far the item is from oneself at this moment. When perceiving more distal (vs. close targets),

individuals tend to use a more abstract (vs. concrete) construal suggesting that the relationship between construal level and psychological distance is bidirectional (Bar-Anan, Liberman, & Trope, 2006; Trope & Liberman, 2010).

The same target can be construed as either abstract (and distant) or concrete (and close) depending on individuals' mindset. For example, cleaning up a beach may be represented as removing waste from a particular beach (i.e., concrete construal, psychologically near) or as an action supporting an environmentally friendly and sustainable lifestyle (i.e., abstract construal, psychologically distant).

A target can be perceived as psychologically near or distant along four dimensions: temporal distance, spatial distance, social distance, and probability (Trope et al., 2007). Table 1 provides an overview on the four dimensions.

Table 1: Dimensions of psychological distance

Distance dimension	Explanation
Temporal	How much time separates the perceiver and the target
Spatial	How close is the target from the perceiver geographically
Social	How different is a social object as the target from the perceiver's self
Probability	How likely is the target to happen or how close is it to the perceiver's reality

The temporal dimension refers to how much time the individual and the target separates. Related research suggests that events in the distant future are represented more abstractly and more structured. Liberman, Sagristano, & Trope (2002) show for example that individuals group related objects in fewer groups when considering a scenario in the distant future, underlining the more superordinate and abstract representation of these distant events.

Spatial distance indicates how physically close the target is from the individual. In the health domain, research by White, Johnson, & Kwan (2014) manipulates the city in which a virus was discovered as either far or close and shows that perceived threats of health viruses are greater for spatially close (vs. spatially distant) conditions.

According to the social dimension, it is the similarity between the target and the individual that drives perceptions of closeness or distance. Carmi & Kimhi (2015) examine individuals' perception of environmental threats and show that social distance (i.e., the degree to which individuals believed that the threat would affect them personally) is a significant predictor of environmental threat perception.

With regard to the probability dimension, it is the likeliness that the target will happen or how close it is to individuals' reality. In relation to the natural environment, McDonald, Chai, & Newell (2015) show that individuals tend to believe that outcomes of environmental threats are rather uncertain, making counteractions less likely to happen.

The four distance dimensions can be manipulated separately (e.g., Henderson & Wakslak, 2010; Liberman & Foerster, 2009; Maglio, Trope, & Liberman, 2013) or simultaneously (e.g., Katz, Byrne, & Kent, 2017; Wright et al., 2012), indicating that each dimension operates individually but they all contribute to a holistic picture of psychological distance. Hence, it is unlikely that a target is perceived as close on one of the dimensions, but rather distant on another dimension.

Pre-existing attitudes

Individuals often hold an attitude regarding certain topics, either from previous experiences or communication with others (Deutsch & Gerard, 1955; Tax et al., 1998). The relevance of such pre-existing attitudes in shaping how individuals process new information was already

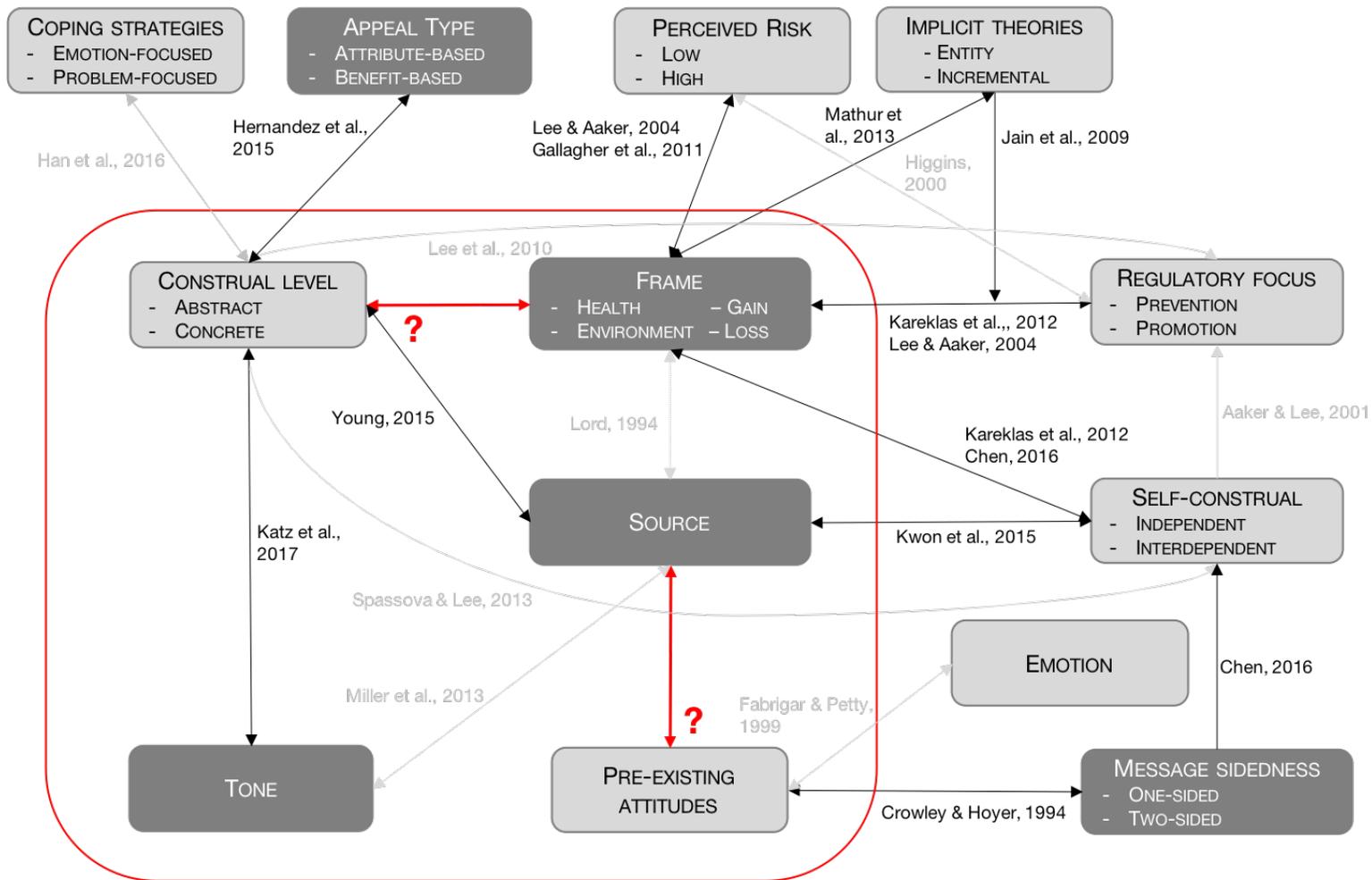
recognized by Hovland, Harvey, & Sherif (1957, p. 245) in their early research, stating that individuals' established attitudes are a "*major anchorage affecting reaction to and evaluation of communication*".

Based on Heider's (1958) balance theory, individuals prefer consistency in their evaluations and actions such that they tend to disagree with messages from disliked sources and to agree with messages from liked sources (Judd, Kenny, & Krosnick, 1983). For example, Travis (2010) reported that the ongoing false belief that President Obama was born outside the US was much more widespread among Republicans than Democrats.

The findings by Hovland et al. (1957) suggest that individuals' preexisting attitudes would only be relevant for highly involving issues. Based on deliberations of the elaboration likelihood model (Petty & Cacioppo, 1986), individuals process messages centrally when they are highly involved. According to the model, persuasion via the central route requires cognitive effort due to the necessary motivation and ability to process the message. In contrast, peripheral processing occurs without great amounts of cognitive efforts, mostly when motivation and/or ability are low. Once messages are processed peripherally, individuals are likely to use heuristics in their evaluation of the message (Chaiken, 1980): For example, individuals who are confronted with a message issued by a sender that they particularly like or dislike, may use a likability heuristic in their evaluation of the message – attributing less or no emphasis on the actual message content (Chaiken, 1980; Eagly & Chaiken, 1993). When pre-existing attitudes are easily accessible in individuals' memory and when they are spontaneously retrieved during persuasive communication, they might act as heuristic. Hence, pre-existing attitudes might have an impact on persuasion, independent of the processing type.

1.2.3 Matching individual and message-related factors in order to increase persuasion

Once a particular message is designed, its persuasiveness depends on the recipients' individual characteristics, that is, person-to-person differences with regard to how the message is received. This interrelationship between message-related and individual factors can be best described through matching and mismatching conditions that influence persuasion either favorably or unfavorably. Prior research has identified many pairings of message and individual features in relation to their relevance for persuasion. Given the focus of this dissertation, I will concentrate on presenting selected findings relating to message framing and construal level theory as well as relating to the source and pre-existing attitudes in this chapter. Figure 2 presents an extensive (even though not fully comprehensive) overview on matching relationships of message-related factors (depicted in dark grey) and individual factors (depicted in light grey) that have been established by prior research. Circled in red is the identified research gap that will be addressed within this dissertation.



Note: Dark grey boxes represent message-related factors while light grey boxes refer to individual factors. Black standard arrows refer to relationships between individual and message factors while pale grey arrows refer to individual-individual or message-message relationships. The latter are not discussed further within this dissertation and are only shown for reasons of comprehensibility.

Figure 2: Matching of message-related and individual factors

It is generally accepted that persuasion cannot be explained by changes in the message frame alone, but that the effect of framing is subject to individuals' characteristics. For example, research by Lee & Aaker (2004) demonstrates that matching individuals' regulatory orientation (i.e., prevention vs. promotion focus) with message framing results in greater persuasion. In particular, they suggest that gain-framed messages are more persuasive for promotion-focused individuals while loss frames yielded in higher persuasion for prevention-framed individuals. In addition, their study suggests that the perceived risk to be affected by a health condition (low vs. high risk) moderates the framing effect. Specifically, when individuals perceive high risk, they may be particularly vigilant against possible negative outcomes and thus are more sensitive to loss frames. In contrast, when individuals perceive low risk, gain frames are more persuasive as these individuals are likely to focus on positive outcomes. Similar effects were found when susceptibility was measured but not manipulated (Gallagher, Updegraff, Rothman, & Sims, 2011).

Individual differences in implicit theories (i.e., the perception of the fixedness / changeability of human attributes and the world around them) (Dweck, Chiu, & Hong, 1995) were also found to moderate the effect of message framing. While entity theorists believe in the fixedness of human attributes and the world around them, incremental theorists believe in the dynamism of human attributes and the world around them (Mathur, Jain, Hsieh, Lindsey, & Maheswaran, 2013). When presented a positively-framed comparative advertising message, incremental theorists displayed higher evaluations of the advertised brand compared to a loss-framed message with the same outcome. In contrast, entity theorists' evaluation was independent from the framing as they are mainly outcome-focused (Jain, Mathur, & Maheswaran, 2009; Mathur et al., 2013).

Kareklas et al. (2012) show that contextual differences in message framing (as either healthy or beneficial for the natural environment) matter in terms of their persuasiveness depending

on individual's self-construal and regulatory focus used in the message. For health-framed messages, individuals with an independent (vs. interdependent) self-construal responded most positively to a promotion frame compared to a prevention frame. For environmentally-framed messages, the results were reversed, such that individuals with an independent (vs. interdependent) self-construal responded most positively to a prevention frame compared to a promotion frame. However, the study lacks reporting the effects of self-construal (independent vs. interdependent focus) depending on the different contextual frames, an aspect addressed in this dissertation (essay 1).

Research by Chen (2016) takes a (self-) construal level perspective on the framing effect and suggests that independent individuals are more persuaded by gain frames while interdependent individuals respond more favorable to loss frames. Their study also suggests an interaction of message frame and construal level (and similarly psychological distance) such that gain frames were evaluated more positive when they presented the product in the distant future (i.e., in an abstract construal), while loss frames were more persuasive for a near (i.e., concrete) construal.

Research relating to the source of a message has identified similar matching effects with individual factors. Using a health context, the study by Young (2015) pairs research related to the message source with individuals' construal level. They suggest that when sources are perceived as similar (vs. distant), individuals deliberated to a greater extent about the feasibility of the promoted health behavior. Considering the effects of the source in relation to individuals' self-construal, Kwon, Saluja, & Adaval (2015) suggest that individuals with a collectivistic mindset (i.e., interdependent self-construal) are more sensitive to the fit of the sender of an advertising message and its content than individuals with an individual (i.e., independent) mindset. The authors reason that an independent mindset leads people to think of the message and the sender as two distinct pieces while interdependent mindsets

would bring individuals' attention towards all components of the ad and their relationship with each other.

The effect of individuals' construal level has been shown to depend on various contextual factors. For example, when individuals are in a pre-decision (vs. post-decision) status mindset, the study by Nenkov (2012) suggests that distant- (vs. close-) framed persuasive messages result in higher purchase intentions. In addition, when individuals' temporal orientation (present vs. future) matches with the product release date (in the near vs. distant future) and the type of product attributes (primary vs. secondary), a study by Martin, Gnoth, & Strong (2009) finds that advertisements were evaluated more favorably. According to the study by Hernandez, Wright, & Rodrigues (2015), appeal type (benefit-based vs. attribute based) moderates the effect of construal level on persuasion. When individuals plan a purchase in the distant future (i.e., abstract construal) benefit-based messages are more persuasive while a purchase planned in the near future (i.e., concrete construal) is more likely when the corresponding persuasive message is based on attributes.

Research by Katz et al. (2017) suggests a link between individuals' level of psychological distance (construal level) and the tone of the message. When messages use strong language that restricts choice, the perception of threat to freedom and subsequent message effectiveness depends on individuals' psychological distance. Individuals who construe the message at greater psychological distance report lower levels of threat to freedom and thus higher message effectiveness compared to individuals who construe the message as psychologically close. There was no difference according to the level of psychological distance when the message did not use strong language and a choice-restricting cue.

In their study, Lee, Keller, & Sternthal (2010) show that matching construal level and regulatory focus results in greater persuasion and subsequent task engagement: Promotion-focused individuals showed more favorable brand attitudes when the ad was presented using

a high level construal while prevention-focused individuals evaluated the brand more favorable when it was advertised using a low-level construal. Also, performance in a subsequent task was increased in matching vs. mismatching conditions.

With regards to health messages, research by Han, Duhachek, & Agrawal (2016) suggests that messages are more persuasive when individuals' problem coping strategies (problem-focused vs. emotion-focused) are matched with construal levels used in the messages. Individuals using problem-focused coping strategies were persuaded more by a health message presented at lower levels of construal. In contrast, those who employ emotion-focused coping strategies evaluated the message more favorably when it was presented at higher level of construal. Relating to environmental-friendly products, Ramirez, Jiménez, & Gau (2015) propose that matching an advertisement (i.e., presenting the product in terms of its abstract vs. concrete features) with individuals' chronic construal level results in higher willingness to pay price premiums for sustainable products.

In their theoretical paper on message-sidedness, Crowley & Hoyer (1994) build on early research by Sawyer (1973) suggesting that two-sided messages are particularly effective for individuals with negative pre-existing attitudes towards the ideas advocated in the message. Following social judgment theory, the authors reason that the negative information contained in two-sided message makes it more likely that the entire message is processed and accepted by individuals holding negative pre-existing attitudes. For pre-existing positive attitudes however, Crowley & Hoyer (1994) posit that persuasion depends on individuals' awareness of the negative information such that when they are not aware of the negative information two-sided messages will be less persuasive (compared to one-sided messages). When they are aware of the negative information however, message sidedness does not influence persuasion. The underlying mechanisms of outlined matching effects have been organized around four concepts: processing fluency (Hernandez et al., 2015; Lee & Aaker, 2004; Lee et al., 2010),

involvement (Petty & Wegener, 1998), product efficacy (Chen, 2016) and perceived self-efficacy (White, MacDonnell, & Dahl, 2011).

1.2.4 Outcomes of persuasive communication on health and the environment

Persuasive communication has the potential to influence individuals' attitudes and behavior. When persuasive communication circles around health and/or the natural environment, individuals' actions may then directly or indirectly have an impact on these two concepts. In health research, the biopsychosocial model (Engel, 1977) provides a solid basis for understanding health-related issues. Relating to the environment, a classification leaning on the pillars of the natural environment adapted from Diesendorf (2000) will serve as theoretical basis (see figure 3 for an overview).

In health research, Engel (1977) developed the biopsychosocial model of illness in order to account for the lacking psychological dimension of prior models since, according to Engel, body and mind cannot be separated. Originally designed to understand diseases from a clinical point of view, the model has been widely applied in various healthcare fields since (Wade & Halligan, 2017). Using its central premise that mind and body are not separated, Engel postulates further that one needs to consider biological, psychological and social dimensions in order to holistically understand the concept of health.

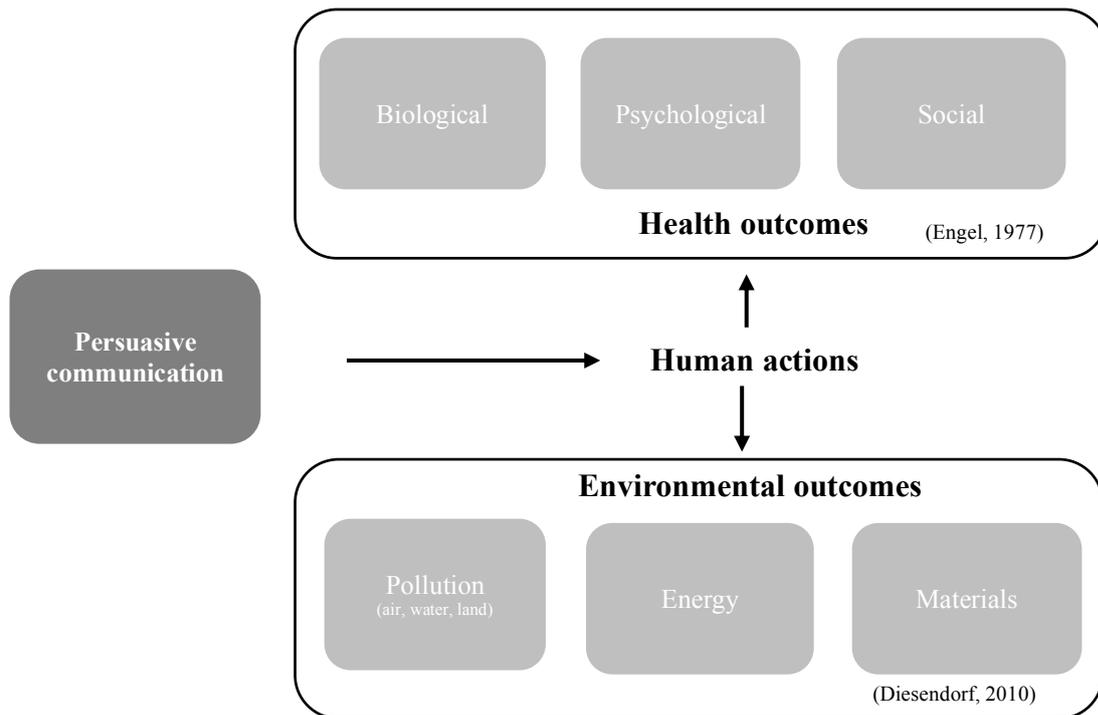


Figure 3: Potential outcomes of persuasive communication to promote health and the environment

Borrowing from Engel’s trichotomy, I apply the three pillars to the considerations of health-related outcomes of behavior within this dissertation. Thereby, it is assumed that any behavior may impact one’s health across these three dimensions. On the biological dimension, referring to physiological pathology, healthy behaviors such as exercising frequently or holding to a balanced diet were found to positively affect blood pressure (e.g., Blair, Goodyear, & Gibbons, 1984) and to decrease the risk of diabetes and coronary heart diseases (e.g., Bassuk & Manson, 2005). The psychological dimension refers to emotions, mood and personality. Accordingly, prior research suggests positive effects of physical activity on individuals’ depression and anxiety levels (e.g., Paluska & Schwenk, 2000) as well as on subjective well-being and positive mood (e.g., Penedo & Dahn, 2005; Stephens, 1988). On the social dimension (i.e., relating to cultural, familial, socioeconomic aspects), individuals reported for example increased and deepened interpersonal exchanges (Martin et

al., 2017) and strengthened cultural identity (Li, Hodgetts, & Ho, 2010) from regularly engaging in a community garden.

Relating to the natural environment, human behavior may have an impact on pollution (referring to air, water and land pollution), energy use and material use – following the classification by Diesendorf (2000). Persuasive communication may thereby help improving humans' footprint on the pillars of the natural environment. With regard to pollution, Thompson, Diaz-Artiga, Weinstein, & Handley (2018) show that individuals in a poor rural neighborhood reduced their air pollution from cooking with highly emitting solid fuels (e.g., wood, coal) by replacing it with gas stoves following persuasive training sessions and focus group discussions. Considering recycling as an indicator of land pollution, recent meta-analyses have identified that interventions using social influence approaches (Abrahamse & Steg, 2013) and financial incentives (Maki, Burns, Ha, & Rothman, 2016) have the potential to increase initial and sustained recycling behaviors. With regards to water pollution, Bernedo, Ferraro, & Price (2014) provide evidence that a persuasive campaign including technical information, moral suasion and social comparisons was able to reduce immediate and delayed household water consumption. Referring to the use of energy, Abrahamse, Steg, Vlek, & Rothengatter (2007) show that individuals reduced their direct household energy consumption following a persuasive campaign including tailored information, goal-setting and feedback. They also reported an increase in energy-related behaviors (e.g., reduced showering time, installing energy-saving light bulbs) compared to a group that did not receive any information and feedback.

Research by Schäfer et al. (2018) highlights the sustainable actions of community-based initiatives in relation to the material dimension: Individuals in these initiatives follow the principle of eco-simplicity, as indicated for example by opting for smaller room sizes in private housings, consuming second rate fruits and vegetables in order to avoid food waste,

using (cargo) bikes instead of cars and using renewable technologies such as photovoltaic or wood pellet stoves.

Among others, several mechanisms have been identified as essential for designing persuasive interventions in prior research on promoting health and living in harmony with the natural environment: Social influence (e.g., Abrahamse & Steg, 2013; Abrahamse et al., 2007), financial incentives (Maki et al., 2016), goal setting and feedback (Abrahamse et al., 2007), as well as moral suasion, knowledge, and empowerment (Bernedo et al., 2014).

Across various topics, including societally relevant topics such as health and the environment, prior research has established the relevance of jointly analyzing the effects of message-related and individual factors on persuasion. Of particular relevance to this dissertation, I will consider the interplay of the message source and individuals' pre-existing attitudes, and of the contextual frame of the message with individuals' psychological distance levels. The succeeding chapter will introduce this dissertation's research design and methods as well as the employed data analysis procedures.

1.3 Research methods and data analysis

In order to answer the research questions a mixed methods approach is used across three essays in this dissertation. Essay 1 and essay 2 investigate theoretical relationships that determine influencing factors of persuasive communication by using quantitative experimental approaches. Essay 3 explores the outcomes of successful persuasive communication in a qualitative field study using the photovoice method. Thereby, experimental designs allow for high internal validity due to the clear cause-and-effect

relationship that can be assumed (Scandura & Williams, 2000). In addition, qualitative field study research observes behavior in its natural setting and allows for an in-depth exploration of the research subject. Combining quantitative and qualitative research designs allows for a synergistic utilization of data and enhances internal and external validity (Jick, 1979). The data used in this dissertation were collected through different types of data collection.

In essay 1, two different experimental designs were used to test the relationship of psychological distance (an individual factor) with the concepts of health and the natural environment (a message-related factors referring to different contextual framing of the message context). The first experiment consisted of an Implicit Association Test (IAT) that allows for measuring automatic evaluations and attitudes without cognitive biases (Greenwald, McGhee, & Schwartz, 1998). In order to assess the relationship for all dimensions of psychological distance, four separate IATs were conducted. In each IAT, participants had to assign stimuli (words or pictures) that represent four different concepts into two response categories, whereby each of them includes two of the four concepts. The underlying rationale is that more strongly associated concepts would elicit faster responses. Each IAT was conducted in seven blocks of consistent and inconsistent pairings as suggested by Greenwald et al. (1998). The data were analyzed through calculation of the D score as central measure of association strength. It represents the difference between the mean response latencies for the two critical trial blocks (block 4 and 7) within each participant's IAT, divided by the pooled standard deviation. The second experiment aimed at testing the relationship between an individual (i.e., psychological distance) and a message-related factor (i.e., contextual framing of the message) using a dependent variable relevant to social marketing. Therefore, consumers' psychological distance mindset was manipulated and their willingness to donate to charities with differently framed thematic priorities (either a health or a pro-environmental charity) was assessed. The data from the second experiment were

analyzed through analyses of variance (ANOVA). Both experiments were conducted online using participants from Amazon's Mechanical Turk.

In essay 2, two experiments investigated the relationship of the sender of a message (a message-related factor) and the recipient's pre-existing attitudes towards that sender (an individual factor) and the effects of the sender-affiliation relationship on persuasion. In both experiments, the sender of the message (we used well known opposing political candidates at that time) was manipulated and participants' affiliation (i.e., their pre-existing attitudes) was measured. In the experiments, different messages relevant to public policy were used as cover story and attitude towards the message as well as reactance indicators (i.e., negative emotion and counterarguing) were measured immediately following the message. In the second experiment, attitude and reactance indicators were also measured with a four-week delay (in addition to the immediate measures used in the first experiment). Both experiments used participants from an online panel. The data were analyzed using moderated mediation analyses (experiment 1) and a mixed ANOVA (experiment 2).

The experimental design of the experiments in essay 1 and 2 allowed for a clear delineation of the different experimental conditions as well as standardization between participants. In all experimental studies, participants were randomly allocated to the different experimental conditions. The efficacy of the experimental manipulations was ensured by manipulation checks for each experiment.

In essay 3, a qualitative photovoice study explored the outcomes of persuasive communication in a community garden setting in a township in South Africa. Following a gardening training (i.e., the persuasive communication), participants were each allocated a garden bed in the community garden to take care of. Several months after the initial training participants were handed out cameras to document the changes the garden has made and the changes they feel personally from engaging in the garden. The photographs were then

discussed in individual interviews with the researcher. Interview data were audio-recorded and transcribed before the data were coded inductively using conventional content analysis (Hsieh & Shannon, 2005) by two independent coders. Photovoice as participatory research method enables an exceptionally deep understanding of the perspective of the research participants and is particularly suitable for otherwise hard to reach population groups (Harper, 2002; Wang & Burris, 1997) such as vulnerable populations that are often affected by societal problems.

1.4 Structure and main results

Throughout the following three empirical chapters this dissertation aims at investigating influencing factors and outcomes of successful persuasive communication. Each essay in the respective chapter represents a distinct academic contribution. Taken together, the essays highlight the interrelationship of individual factors, inherent to the consumer when processing a message, and factors that relate to the message itself. The essays investigate the relevance of matching (vs. mismatching) conditions of these individual and message-related factors for persuasive communication. Moreover, in the third essay, outcomes of persuasive communication based on the results of a field study (working with a vulnerable population group) are explored. Figure 4 shows an overview of the structural setup of the succeeding empirical chapters before each chapter will be introduced in detail below.

		Independent variables		Dependent variables
		Individual factor	Message-related factor	Persuasion
Influencing factors	Chapter 2	Mental representation of object or event <i>Close / Distant</i>	Contextual framing of object or message <i>Health / Environment</i>	Reaction time Willingness to donate
	Chapter 3	Pre-existing attitude + / -	Sender <i>2 (political) opponents</i>	Immediate attitude Delayed attitude Negative emotion
				
Effects	Chapter 4	Outcomes of successful persuasive communication in vulnerable populations		

Figure 4: Structural overview of the empirical chapters

Chapter 2 builds on construal level theory of psychological distance (Liberman & Trope, 1998; Trope & Liberman, 2003; Trope et al., 2007) and assesses the influence of psychological distance on consumers' preferences in the social marketing domain depending on the contextual framing of the target (as either beneficial for one's health or the natural environment). The results of two experiments show that consumers implicitly and explicitly associate health with psychological closeness while they perceive a stronger association between the environment with psychological distance. Moreover, this interrelationship of psychological distance as individual factor and the different contextual framing (as either beneficial for health-related or environmental aspects) as message factor has implications for charitable giving: Consumers were more likely to donate to a health-related charity when they were in a psychologically close mindset. Donation willingness to pro-environmental charities was higher when consumers had been primed with a psychological distance mindset beforehand. Across the two experiments, no differences were found among the four

dimensions of psychological distance (temporal, spatial, social, hypothetical) indicating that the results are similarly applicable to all dimensions. Social marketers are better well aware of relevance of matching one's psychological distance with health- or environment-related messages when designing persuasive communication.

Chapter 3 builds on reactance theory and investigates how the sender of a persuasive message and consumers' affiliation with the sender collectively affect immediate and delayed persuasion. Results of the first experiment show that, reactance is highest in mismatching conditions (identified through higher negative emotion, lower positive emotion and more counterarguing). The effect of the match and mismatch conditions on negative emotion then translates to attitude. Building on these findings, the first experiment was replicated in a different context and measured reactance indicators also with a four-week delay (t2). The study finds that the sender effect is present at t1 (indicating reactance) but disappears at t2. Negative (positive) emotions were highest (lowest) in the mismatch condition, compared to other conditions. The findings further reveal that attitude change over time depends on reactance (as indicated by negative emotions), which is caused by the mismatch between the sender and recipients' preferences.

Chapter 4 explores the outcomes of persuasive communication in a community garden setting. Individuals living in a South African township were offered a one-week gardening training and allocated a garden bed in a community garden to grow food to use for their own purposes. Using the photovoice method, gardeners were handed out cameras several months after the initial training to document what the gardens mean to them and what has changed since they started working their garden bed. Eight major themes and 19 minor themes resulted from the data analysis exposing the broad effects of engaging in the garden: Beyond the expected positive effects on nutrition, health and the economic situation, participants reported having positive emotion such as happiness and pride but also gaining independence

and having a meaning in life. They also increased their knowledge and used this newly adopted knowledge to create own business ideas. Participants also shared their knowledge leading to further social benefits of the community garden. Importantly, they mentioned an improved relationship with nature resulting from the gardening activities such that they developed a sense of responsibility for their environment and started to care about waste and water issues in their community.

Finally, chapter 5 discusses the findings, contribution, and limitations of this dissertation and provides implications for practice and future research.

2 Construal-level perspective on consumer preferences and evaluations in relation to different contextual framing of the message¹

Abstract

The goal of the study is to assess the interrelationship between psychological distance (and closeness) and environmental (and health) concepts, and to assess the influence of distance (vs. closeness) on consumers' intentions to donate for environmental and health charities. In two empirical studies, the authors show that it is easier and more natural for consumers to pair distant target words with environment-related stimuli and to pair close target words with health-related stimuli and that environmental (vs. health) charities are supported more when consumers are primed with psychological distance (vs. closeness). We thus extend the literature on construal level theory of psychological distance by showing that the domains of environment and health relate to psychological distance, with contrasting effects. The results suggest that persuasive messages to influence either healthy or pro-environmental object evaluations or behaviors should be designed depending on consumers' mindset of psychological distance.

Keywords: psychological distance, psychological closeness, matching, donation, pre-existing attitudes

¹ The full version of this chapter was included in the examiners' copy of this dissertation. In order to avoid any kind of plagiarism or dual publication, it is not included in the freely accessible version of this dissertation, but can be requested from the author.

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Awarded “Best paper award 2018” by the journal editors.

3 Consumer reactance to persuasive messages: How individual preferences influence attitude and attitude change depending on the sender of the message²

Abstract

The aim of this paper is to understand the emergence and persistence of psychological reactance depending on the message source. In the context of advocating a public policy, we conducted two (longitudinal) experiments to show that the source of the message drives both, immediate reactance and a delayed increase in persuasion. The effect depends on individual pre-existing attitudes, that is, in our study, consumers' affiliation with the sender of a message: When there is a mismatch between the sender and own affiliation, reactance not only occurs immediately following the message but there is also a delayed increase in attitude. Negative emotions mediate the process. The results amplify existing theory in the way, that reactance is not merely the outcome of a freedom threat, but also linked to a negative impression of the message source. Hence, policy makers should not only be aware of freedom-threatening communication elements, but also carefully consider the spokesperson when designing strong persuasive messages.

Keywords: persuasion, sleeper effect, negative emotion, message source, matching

² The full version of this chapter was included in the examiners' copy of this dissertation. In order to avoid any kind of plagiarism or dual publication, it is not included in the freely accessible version of this dissertation, but can be requested from the author.

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Working paper. Lucke, S., Lee, A.Y., Koenigstorfer, J. (2017): Consumer Reactance to Persuasive Messages: How Personal Preferences Influence Attitude and Attitude Change. Presented at the *Association of Consumer Research Conference 2017*.

4 Outcomes of successful persuasive communication to vulnerable populations: Field evidence from community gardens in South African townships³

Abstract

The purpose of this research is to explore the motivation for, and potential effects of, participation in a township community garden as a result of a one-week training program. The authors conducted a photovoice study with 18 South African township residents who grew their own food as part of a community gardening program in the Western Cape. The results show that informants are motivated by better (healthy) food access, increases in knowledge, financial savings, and independence. Informants perceive various positive effects from their involvement: they share knowledge, experience psychological and social effects, and engage in knowledge transfer practices for resource integration. Participants also improved their relationship with the natural environment such that they start to value nature and develop a sense of responsibility for it. The study thus extends prior research on community gardening, particularly in relation to helping vulnerable populations decrease food insecurity.

Keywords: healthy food intake, food insecurity, therapeutic landscape, relationship with nature, photovoice

³ The full version of this chapter was included in the examiners' copy of this dissertation. In order to avoid any kind of plagiarism or dual publication, it is not included in the freely accessible version of this dissertation, but can be requested from the author.

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5 Conclusion

5.1 Summary of findings and theoretical implications

The purpose of the dissertation was to examine persuasion regarding health and the environment. Throughout three empirical essays, the influencing factors and consequences of persuasive communication of health and pro-environmental messages were investigated. The findings help disentangle the factors influencing persuasion. They highlight the relevance of the combined effects of individual and message-related factors on persuasion (essay 1 and 2). In addition, the dissertation provides an exploration of potential health and environmental outcomes of persuasive communication – particularly to a vulnerable population group (essay 3). The main contribution of this dissertation constitutes matching individual (i.e., construal level and pre-existing attitudes) and message-related factors (i.e., message frame and message source) and its effects on spontaneous and delayed persuasion. By using different research methods in the studies included in this dissertation (i.e., experimental studies in essay 1 and 2, and a qualitative photovoice study in essay 3) the context of the respective topic could ideally be addressed with the adequate methodological design. A summary of the results and theoretical contributions of each essay will be presented in the following paragraphs.

Essay 1 aimed to assess the interrelationship between psychological distance and contextual message framing as either health- or environmental- oriented and to show the relevance of an adequate matching of these factors to persuasion. Particularly, the study suggests that psychological distance (vs. closeness) is automatically and implicitly related to the environment (vs. health) and vice versa and consumers' willingness to donate to charity is higher in matching vs. mismatching conditions. The findings are in line with prior research

stating that many psychological phenomena such as decision making, emotion regulation, social and moral judgment, motivation or goal pursuit happen without conscious awareness (Bargh, Schwader, Hailey, Dyer, & Boothby, 2012). The study contributes to the construal level theory literature (Liberman & Trope, 1998; Trope & Liberman, 2003) by showing that individuals implicitly hold associations of closeness and distance, as well as of health and the environment. The study also adds to construal level theory in the way that it provides evidence that the effects are stable across all four distance dimensions. While prior research provided mixed results (e.g., Ein-Gar & Levontin, 2013; Maglio et al., 2013), there was no interaction of the distance dimensions with any of the variables that were considered indicating that both automatic associations and donation preferences are independent from the dimension of psychological distance. Moreover, the study extends prior research that either considers health or the natural environment in their relationship to psychological distance (Carmi & Kimhi, 2015; McDonald et al., 2015; Ramirez et al., 2015) and contrasts research that argues for the contextual similarity of the two contexts (Griffioen et al., 2017). This study is the first that directly compares the two contexts (the natural environment vs. health) depending on consumers' mindset of psychological distance (vs. closeness).

Essay 2 focused on understanding the emergence and persistence of persuasion under conditions of psychological reactance depending on the message source. The study concludes that the source of the message drives both immediate reactance and a delayed increase in persuasion when it mismatches with individuals' pre-existing attitudes. In support of the differential decay hypothesis (Pratkanis et al., 1988), the findings suggest a delayed increase in persuasion following initial disagreement with a message by a disliked source. Adding to research by Albarracín et al. (2017) and Gruder et al. (1978) this study further suggests that not only source credibility acts as discounting cue for the sleeper effect, but also pre-existing attitudes. The process is mediated by negative emotion but not by counterarguing, suggesting

a rather peripheral message processing endorsing Silvia's (2006) argument that a delayed increase in persuasion would only emerge when no counterarguing is involved. This study thus supports deliberations by Chaiken (1980) about message sources as heuristics under peripheral processing that cause rather affective than cognitive responses. While previous research suggests that greater accessibility of source likability (Petty & Cacioppo, 1986) and accessibility of favorable attitudes towards the message content (Fabrigar, Priester, Petty, & Wegener, 1998) make it more likely that individuals process messages centrally, in this study, we show that in the case of negative accessible pre-existing attitudes towards the source messages are not processed centrally, probably due to the focus being on the negative source causing negative affective instead of cognitive reactions.

Essay 3 explored potential outcomes of successful persuasive communication in a community garden setting to a vulnerable population. The content of the training (i.e., the persuasive communication) was limited to knowledge transfer relating to planting and gardening practices. To the extent that prior research suggests that low income individuals tend to have a short-term focus (particularly in their spending behavior) (i.e., low temporal construal) (Andreasen, 1993; Richards, 1966) the study incorporates construal level theory such that the persuasive training session was designed particularly using concrete elements and explanations using a focus on short-term effects in order to match message recipients' chronic construal (Ramirez et al., 2015). The effects of the training however go well beyond the outlined concrete and short-term planting and gardening advice: Township community gardeners reported health benefits, along the three health dimensions (physical, social, mental) suggested by the World Health Organization (2005) – thereby supporting existing research (e.g., Martin et al., 2017). Beside positive physical health effects due to facilitated access to healthy food and positive social health effects when engaging with the community, five categories of psychological effects were found in the study: happiness, pride, self-

encouragement, meaning of life, and independence. The findings thus contribute to the knowledge about how communication about engaging in community gardens may increase the health status of township residents. In addition, the study yields positive effects of the training relating to social connections, the use and development of knowledge, the development of an entrepreneurial spirit, and improvements in the relationship with the natural environment. Particularly, the latter contrasts research by Martin et al. (2017) stating that engaging in community gardening primarily affects gardeners' health. Thereby, this study shows that gardening activities can be centered around both health and environmental concerns. While few studies target vulnerable populations in community garden settings (Karaan & Mohamed, 1998), the present study is the only one investigating the outcomes of engaging in a community garden following persuasive communication.

5.2 Practical implications

As the studies were conducted in a social marketing environment, circling around the promotion of health and the natural environment, the results are particularly relevant to social marketers and public policy makers in these areas.

Evidence from essay 1 suggests that marketers and policy makers can be informed to better understand the multifinality of many behaviors (relating to health and the natural environment at the same time), and how the preferences for certain contexts are influenced by the concept of psychological distance. Following a segmentation strategy, they may align their persuasive messages (focusing either on health or the environment) to their target groups' or individuals' distance mindset. Matching (vs. mismatching) contextual cues in the

message and individuals' distance mindset may be more successful in persuading individuals: Messages aimed at increasing health-related behavior should thereby focus on psychological close cues that focus on subordinate and concrete goals while pro-environmental messages should use distant cues and abstract, superordinate goals.

Findings from essay 2 suggest that social marketers and policy makers may pay attention to the tone of the message (i.e., whether or not it contains freedom-threatening cues) when designing persuasive messages – given that freedom threats imply a potential for undesired boomerang effects. Moreover, they are well advised to carefully consider the spokesperson, especially bearing in mind the target group. When using well-known and particularly polarizing senders, it may be useful to segment the target group based on their pre-existing attitudes before exposing them to the message. An adequate match of the target group (based on their pre-existing attitudes) and the spokesperson may prevent reactance to occur in the first place and hence increase immediate persuasion. Depending on the purpose of the message (short-term vs. long-term persuasion), communicators may pursue different strategies when applying the results of this study: Aiming at spontaneous attention without great cognitive efforts, communicators may choose mismatching conditions of sender and pre-existing attitudes on purpose (consider shock advertising for example). When striving for more stable and long-term persuasion, they should attribute increased relevance to the content of the message – given that possible spontaneous negative emotion towards the source following the message may vanish over time allowing for a more central processing of the message itself in the long run. Implications cannot only be made for persuasive attempts of politicians (as used in this study), but results are similarly applicable to spokespersons in the area of public health, protection of the environment, and social marketing (areas where freedom threats are common).

The results of essay 3 are particularly relevant to marketers, policy makers, and local organizations aiming to tackle societal problems of vulnerable populations. In the present study, the persuasive training session accompanied by the provision of a community garden bed served as an engine to social change. The gardens may play a vital role in overcoming food insecurity (Crush, Frayne, & Pendleton, 2012) and increasing community health, widespread problems in many low-income populations. The explored motivations and effects of engaging in the garden may help policy makers to design future campaigns targeted at specific groups and their needs (e.g., focusing on income-related, health-related, social or environmental aspects). Even though not part of the initial training session, individuals reported an increased responsibility for their natural environment in the township (e.g., they mentioned waste reduction, product re-usage and a sense of responsibility for their natural environment). Given that sustainable development is an issue on most public agendas, the launch of a community garden accompanied by a respective training session could be used to sensitize individuals to their natural environment and to other goals related to sustainable development.

5.3 Limitations and directions for future research

This dissertation has several limitations that shall be addressed below: Initially, general limitations are presented; then, specific limitations relating to each essay are explored in the following paragraphs.

First, previous research has shown that most individual factors can likewise be manipulated within the persuasive message (from emotion to motivation to regulatory focus): For

example, a psychological distance mindset can be manipulated by highlighting the immediateness of consumer actions (temporal), the local effects of consumer actions (spatial), the relevance of the self or in-groups (social), and the certainty of cause-effect relationships (hypothetical) – making psychological distance a message factor instead of an individual factor. Hence, this makes the split between individual and message-related factors applied in this dissertation less distinct. Future research could work on an alternative classification to organize the matching effects outlined in this dissertation and by prior research.

While essay 1 argues for the multifinality of many targets, the study design does not consider that individuals may be motivated by both contexts simultaneously (with identical or varying intensity). Based on the results of essay 1, it is unclear which mindset is dominant and determines individuals' attitude formation and subsequent behavior. Individuals in a distant mindset might think in terms of superordinate abstract goals and may consider health as a means to achieve environmental goals, for example (Finn & O'Fallin, 2017). Hence, future research may look at consumers' perspective on complementary or conflicting environmental and health goals. A related direction for prospect research constitutes the constructs that moderate the relationship between psychological distance mindsets and consumer-related outcome variables, further extending research by Kareklas et al. (2012) who proposed that individuals' self-construal and regulatory focus are moderators for the relationship between health and environmental messages and persuasion. Future research could also extend the scope of the findings of essay 1 to other persuasion-related outcome variables and identify potential mechanisms that explain the matching effect of contextual framing and construal level (such as processing fluency (Lee & Aaker, 2004) or involvement (Petty & Wegener, 1998) that have been identified in other matching studies).

Applicable to essay 1 and 2, all studies were conducted online using members from a German or US American panel. Although the use of a panel is widely accepted (e.g., Hauser & Schwarz, 2016; Mason & Suri, 2012) future research could replicate the studies in a laboratory setting using a different sample in order to increase internal and external validity. Particularly with regards to donations (a dependent variable in essay 1), US consumers differ in their donation patterns from other nationalities (Charities Aid Foundation, 2016). Also, as assessed in essay 2, the political landscape is fairly different in the US and Germany (given the distinct electoral systems but also voters' attitudes and behaviors) leaving the question of generalizability of the findings unanswered.

Essay 2 explores the relationship between the source of a message and individuals' pre-existing attitudes for messages containing freedom-threatening cues. The absence of the manipulation of a freedom threat in the study represents a limitation and decreases the explanatory power of the results to the extent that it remains largely unclear which role the freedom threat plays in the present effects on persuasion. Hence, future research may replicate the study and add a non-freedom-threatening experimental condition in order to provide evidence whether the negative message source effect is the result of simply disliking the source, or the result of the message source limiting values that people uphold as important. Another direction for future research is looking into the use of one-sided vs. two-sided messages (Crowley & Hoyer, 1994) and their immediate and delayed effects on persuasion in the context of strong pre-existing attitudes. While only one-sided messages were used in this study (to stick with the theoretical rationale of reactance theory), it is particularly interesting to look at long-term persuasion when two-sided messages are used. Given the strong pre-existing attitudes and the focus on the spokesperson leading to rather peripheral processing, prospect studies may investigate under which conditions, if any, messages may be centrally processed and what the effects on delayed persuasion are.

Essay 3 employed a qualitative photovoice study where informants chose which pictures to take and which ones to discuss in the subsequent interview. Prior research suggests that individuals often chose visually appealing photos over content-rich ones (Wang & Redwood-Jones, 2001), certainly a limitation of the photovoice method. Nevertheless, a deep exploration of manifold issues could be achieved in the subsequent interviews. In addition, due to the qualitative nature of the study, there is no evidence on which aspects of the training have caused the identified effects. Future research might thus use a different approach comparing differential training components (e.g., low vs. high level construal messages, health vs. environmental arguments, varying sources) in different comparable samples.

In conclusion, across a series of three empirical papers, this dissertation provides various new insights into persuasion regarding health and environmental messages. The results provide evidence for the relevance of matching individual (i.e., construal level and pre-existing attitudes) and message-related factors (i.e., message frame and message source) in persuasion research and explores the effects of successful persuasive communication on health and the environment in a vulnerable population. The dissertation also provides advice to practitioners as to how to design messages according to the respective characteristics of target groups.

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Appendix

Empirical chapters for examination committee

1. Lucke, S. & Koenigstorfer, J. (2018): Construal-Level Perspective on Consumers' Donation Preferences in Relation to the Environment and Health, in: *Marketing ZFP – Journal of Research and Management*, Vol. 40, (1), 21-34. doi:10.15358/0344-1369-2018-1-21
2. Lucke, S., Lee, A. Y., Koenigstorfer, J. Consumer reactance to persuasive messages: How individual preferences influence attitude and attitude change depending on the sender of the message. [Working paper]
3. Lucke, S., Mamo, E. & Koenigstorfer, J. (2019): Exploring the meaning of growing food in community gardens to South African township residents: A photovoice study. *Health and Place*, 55 (1), 165-176. doi:10.1016/j.healthplace.2018.11.009