Influencing consumer behavioural intentions: Reducing household water consumption

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Acknowledgements

Abstract

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Although the topic of sustainability communication has been extensively studied since the 1970s, there remain gaps and contradictions, e.g. the effectiveness of communication strategies for influencing individual pro-environmental behaviour change. This study continues this discussion: the purpose was to identify what communication interventions are most effective for changing individual intention to save water around the home, and how significant these communication interventions are, in comparison to the other motivating factors. The theoretical part explores interventions based on drivers and barriers to pro-environmental behaviour in terms of water consumption and related topics. The results provide a comprehensive study of the most significant interventions for creating an effective communication strategy, one of which is a dichotomous approach to message tailoring (rationality and emotionality in appeals). The empirical part tests the theoretical findings in an online survey (n=285), providing a model based on ELM, TPB and additional factors that might influence behavioural intention. The results support a significant influence of communication on behavioural intention, and show that both appeals (rational and emotional) can be a significant predictor of behavioural intention in terms of individual water consumption, though rational appeal leads to a higher intention to save water; past behaviour and perceived behavioural control are other significant variables that might have a stronger influence on intention. *The research was conducted in partnership with IKEA.*

Keywords: Emotional and rational communication, advertising appeals, intention to behave sustainably, message tailoring, persuasive sustainability communication, strategic communication, Elaboration Likelihood Model (ELM), Theory of Planned Behaviour (TPB)
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In the study (particularly, in the analysis part) the following abbreviations were used:

ELM = Elaboration Likelihood Model

TPB = Theory of Planned Behaviour

ME = Message Exposure

AQ = Argument quality

SC = Source Credibility

AA = Attitude toward Advertisement

AB = Attitude to Behaviour

PBC = Perceived Behavioural Control

SN = Subjective norms

DE = Direct Experience

PB = Past Behaviour

BI = Behavioural Intentions

IE = Indirect Effect

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Introduction

Contextual background

"Water is fundamental to life on our planet, but this precious resource is increasingly in demand and under threat" (UNEP, 2022). Water is one of the finite natural resources that are essential for ecosystem health and human survival; but it is a resource that is gradually being depleted, causing irreparable damage and significant environmental change, so the future of our planet and humanity significantly depends on the success of water conservation (UN, 2022; Rumble et al., 2017).

71% of the Earth is covered by water, but only less than three percent of the world's water is freshwater, and 2.5% of it is not available for human consumption: it is contained in ice and glaciers, the atmosphere and the soil; that is, only 0.5% of the world's water is available for human use (Bureau of Reclamation, 2020). Moreover, 0.5% of the planet's freshwater that is available for consumption, is wasted unwisely, e.g. in toilet flushing systems (Nield, 2019), or actively polluted (UN Environment Programme, 2021). Superimposed on these problems is global population growth, which is predicted to grow to around 8.5 billion by 2030, and to around 9.7 billion by 2050 (UN, 2019), and to around 11 billion by the end of 21st century (UN, 2022). Already around 2 billion people do not have access to safe drinking water at home (CDC, 2022), and it is predicted that over 5 billion people will have water problems by 2050 (The Guardian, 2018). Meanwhile, global water demand is also expected to increase by 2050 (UN Water, 2021). Therefore, according to worst-case estimates, in about 17 years the freshwater available for consumption will run out (The World Counts, 2022).

Domestic sector (household water use) accounts for 11% of global water consumption (Flörke, 2013). According to regulations, the amount of fresh water needed to meet basic needs is 50L/person/day (UN Water, 2021). Currently, on a daily basis, humanity consumes 10 billion tons of water (The World Counts, 2022), individual water consumption varies: e.g., US average water use is 390L/person/day

(Philadelphia Water Department, 2022), UK — 141L/person/day (WWT, 2019), Scandinavian countries — 140L/person/day (Orbital, 2022). All these values exceed the "ideal" of 50L/person/day, and the realistic expected value for water consumption is 175 L/person/day (Crouch et al., 2021). Added to these negative figures is an additional compounding global threat, which is climate change (National Geographic, 2022). "Around the world, people are increasingly experiencing the effects of climate change through severe weather and natural disasters like heatwaves, floods and wildfires" (IKEA, 2022, p.7). Individual mindsets are becoming a threat themselves: rising level standards increase demand for water, e.g. the richer people become, the greater their demand for water consuming appliances (dishwashers, washing machines, etc.), or the more they follow a more aesthetic, unsustainable lifestyle (constructing swimming pools at home, etc.) (Waterscan, 2022).

The problem can be influenced if humanity on a global scale changes individual behaviour to pro-ecological one, and begins to at least minimizing everyday impact and conserving water (Crouch et al., 2021), for example: taking a short shower instead of a bath; turning off the faucet when brushing teeth or shaving; efficient hand-washing techniques (soaking dishes before opening water tap) (USGS, 2022); reusing water from washing vegetables and using it to water plants (IKEA, 2022), only washing clothes when necessary (Reset Sustainability Platform, 2010), etc. Of course, there also exist many technologies for individual and family home water saving, such as appliances (taps, shower systems, nozzles) that help reduce water pressure and reuse water for less consumption (IKEA, 2022).

Unfortunately, despite the urgent need to conserve water at all levels of consumption (organizations and households), and the availability of water-saving technologies and behavioural flexibility, people are not putting enough effort into overcoming problems for many reasons (Kollmuss & Agyeman, 2002; Greta Thunberg, 2021). However, change will only come "from individuals showing leadership <...> and collective responsibility, which will result in many small changes generating the significant change that is required" (Greta Thunberg, 2021). To attract consumers to water problems and possible solutions, various educational programs are run. The nudges come in different forms, from different sources. "Education, scientific evidence of environmental degradation, personal experiences and the increased coverage in the media of environmental disasters are driving the

global shift in opinions about the environment" (Glocalities, 2019). For example, governmental institutions implement changes in the pricing on water consumption (EEA, 2020). On a national level, educational programs are being introduced, to teach to think about solving global problems, from ecology to conservation, starting in childhood (NBC News, 2020). For already interested individuals, public environmental organizations publish water use calculators to calculate personal contribution to the global problem (e.g. Water Footprint Calculator, Water Footprint Network). Ecological trademarks on products and goods help consumers understand information about ecological certification via ecological labelling (e.g. Unified Water Label), encouraging consumers to make more conscious choices (Orgill, 2021). Social advertising is producing media content with influencers (Conservation International, 2014). Companies developing water stewardship programs drive regenerative projects, implement new affordable technologies, call to action through marketing campaigns, and so on. There is an incredible number of examples of interventions from different actors nowadays, yet the problem remains and gets worse.

Communicating with consumers is one of the effective possibilities to influence behaviour; but the question remains how to interest societies in a way that does not cause a negative effect: e.g. greenwashing (Balluchi et al., 2020) or environmental propaganda (Crowley, 2014), demarketing (AbuBakar et al., 2021). Beyond that, whose voice sounds more motivating for consumers? "The 2022 Edelman Trust Barometer cited business as the only trusted global institution to address the world's most pressing problems, which include climate change and the energy transition" (WeForum, 2022), in addition, the voice of brands is able to have a lasting impact on individual behavioural change (Adomßent & Godemann, 2011).

Businesses have long been engaged in a dialogue with consumers about the importance of conscious water consumption, uniting in coalitions (e.g. 50L Home Coalition) or individually: communicating sustainability in marketing campaigns, PR, CSR, annual reports, etc. For example, IKEA applies the Transparency policy to all its activities, including those aimed at sustainability (e.g. implementing renewed products and technologies). The current strategic aim of IKEA is "to inspire and enable more than 1 billion people to healthy and more sustainable choices within the planet" (IKEA, 2022). In its "Healthy & Sustainable living" position, IKEA is aiming to promote circular and sustainable consumption and

create a movement in society around better everyday living; and this is a great example of how a company can turn problems into motivation, because 78% of the water consumed in the value chain is for materials; 5% used for production; and 15% accounts for consumer home water use. Thus, the IKEA consumer can affect as much as 15% of water consumption within the company's statistics, on a global scale.

Though "People increasingly focus on a healthy and responsible lifestyle" (Glocalities, 2019), the issue of water in consumer perception still does not seem important enough compared to waste reduction, changing behaviours in food and product consumption, etc. (Deloitte, 2021). Therefore, it is now particularly important to talk about water issues, to raise awareness and interest, to change consumer attitudes and intentions regarding acceptable and sufficient sustainable behaviour. In order to motivate consumers, communicators must first understand them: i.e. study drivers and barriers to changing attitudes and intentions, and how to effectively apply this knowledge in communication strategies to change the future for the better through communication interventions.

Study Aim and Research Questions

Communication interventions in sustainability is a very broad topic that can cover both social sciences and communication, namely: communication and behavioural interventions, effects of consumer trust, predicting behavioural scenarios, affective and emotional consumer reactions towards communication, and many other aspects.

The current study is guided by a socio-psychological perspective (Craig, 1999): it is based on the findings of interdisciplinary research (communicational, psychological and environmental studies), as the global objective is to overcome global environmental problems of water scarcity, where the consumer is the main recipient of information, thus the study of communicative effects on consumer behaviour is impossible without studying the psychological characteristics of consumer. Nevertheless, the current research is communicative, exploring how to use these interdisciplinary findings in the field of strategic communication, which is defined as a purposeful use of communication by an organization to fulfill its mission (Hallahan et al., 2007).

The study explores an aspect of sustainability communication: effective strategic planning and appeal strategy in message tailoring. Although this topic has been studied long and extensively, it has been not well studied, and some findings are contradictory (Petty et al., 2002; Wang et al., 2009; Akbari, 2015; Andreu et al., 2015; Seunghwan & Bob, 2018; Zhang et al., 2020; AbuBakar et al., 2021). The question of how different messages are analyzed, and how attitudes are formed and therefore behaviour is changed, is still being studied (Rumble et al., 2017). For example, researchers still do not have a single opinion on which type of message appeals serves greater effectiveness of the holistic communication strategy: under certain factors, a rational appeal will contribute to greater effect (e.g. Mas et al., 2014; Rumble et al., 2017; Zhang et al., 2020; Casais & Pereira, 2021; Matušínská & Zapletalová, 2021), while in other studies, on the contrary, the emphasis should be kept on emotional impact first (e.g. Morris et al., 2005; Koenig-Lewis et al., 2014; Oñate et al., 2018; Seunghwan & Bob, 2018; AbuBakar et al., 2021; Brosch & Steg, 2021). The third group of studies suggests the importance of both appeal types, preferring them dependently on other factors, such as elaboration, knowledge, engagement, problem importance, argument quality, emotions, values,

etc. (e.g. Petty et al., 2002; Wilson, 2006; Grundey, 2008; Jun et al., 2009; Flynn et al., 2011; Akbari, 2015; Andreu et al., 2015; Weng et al., 2017; Cyr et al., 2018; Manca & Fornara, 2019). Apparently, no single conclusion has been yet drawn, but it's possible provide an overview, considering multiple exposure factors.

The aim of the study is to expand the knowledge of sustainability communication research in the field of strategic communication by studying communication tools that can shift behavioural intentions to reduce individual water consumption. The study is quantitative in nature and is supported by an empirical experiment. The object of the research is factors influencing the change in personal intention in terms of water consumption. The subject of the research is communication appeals as a part of these factors. In order to understand better and expand knowledge on how to shift behavioral intentions regarding household water consumption by means of communication, the first research question is as follows:

RQ1: What communication interventions are most effective for changing individual intention to save water around the home?

As the subject is consumers, it is necessary to check whether it is communication that might change intention, or other motivating factors, which are inseparable from consumer perception and decision-making processes. This study also explores the relationship between message exposure and behavioural intention through the prism of attitude to behaviour, subjective norms, perceived behavioural control and additional factors (direct experience, past behaviour), so the second question is as follows:

RQ2: How significant is the influence of communication interventions, in comparison to the other motivating factors, for changing individual intention to save water around the home?

This study contributes to the field of strategic communication by expanding the understanding of how communication strategies can influence changes in consumer behavioural intentions in the short term, and in the long-run to predict future scenarios on intentions and induce the necessary changes in attitudes and

behavioural patterns. The study contributes to the practical implications by helping companies to build guidelines on the effective use of appeals in communication campaigns to increase individual intention to reduce water consumption.

Literature Review

This chapter covers the development of research on effective sustainability communication and different intervention strategies based on barriers to sustainable consumer behaviour, narrowing down to the examination of a micro-strategy of message tailoring, and studies the use of rational and emotional appeals, as well as the ethical impact on consumers through the strategies studied.

Persuasive sustainability communication

Environmental issues started being discussed in the 1970s (Martinez et al., 2015) and have been particularly debated in recent years. Environmental problems are increasing, and much time has been devoted to discussing sustainable behaviour, and solving its problems both in academia and practice (Koenig-Lewis et al., 2014). At the same time, the urgent problems of recent years have displaced sustainability issues: e.g., the COVID-19 pandemic: people have become more health conscious, and sustainability issues faded into the background (SB Insight, 2022). It has become harder for people to shape and adhere to sustainable lifestyles: they face too much information about consumption and sustainable choices (Elf et al., 2019), and there is a trend towards ignoring information (Wang et al., 2009; Manca & Fornara, 2019), including promotion of sustainable lifestyles (SB Insight, 2022). Therefore, sustainable behaviour campaigns hardly lead to changes in lifestyles and behavioural habits (Manca & Fornara, 2019). Meanwhile, the environmental problem is getting worse. Climate change is important and urgent, affecting everyone; and brands and organizations, can help improving the global situation through consumer communication.

First, the concept of sustainability needs to be conceptualized. Sustainability is a concept that is difficult to grasp (Robertson, 2018), with numerous descriptions of sustainability all including the relationship between present and future (Marzouk, 2020), namely "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (UN, 1987). Sustainability on water

usage is conceptualized as finding ways to use and manage water in order to avoid the critical problems of water scarcity for future generations (Madias & Szymkowiak, 2022).

For brands to communicate effectively with consumers about sustainability, it needs to be clear what can be expected of an individual contribution. It refers to *sustainable consumer behaviour, eco-behaviour, pro-environmental behaviour,* or *sustainable consumption.* These concepts are very similar in definitions, and are generally defined as the extent to which consumers are permanently concerned about the impact of their consumption on the environment; behaviour that helps to meet the needs of the present generation, being less harmful to the environment and the ability of the environment to meet the needs of future generations (Martinez et al., 2015), consciously minimizing negative impacts on the environment, i.e. conscious consumption, use and re-use, reducing waste, etc. (Kollmuss & Agyeman, 2002). *Pro-environmental behaviour* is also a type of consumer choice (Brosch & Steg, 2021; Koenig-Lewis et al., 2014). Related to this is the concept of *green consciousness* and *environmentally conscious* or *green consumers*, which is widely-discussed, and can basically be defined as environmentally, ecologically or socially conscious consumers whose purchasing decisions and actions are based on the idea that the environment is important (Connoly et al., 2007). Perhaps, the most inclusive concept is *pro-environmental consciousness*, which includes a complex of environmental knowledge, values, and attitudes, together with emotional involvement (Kollmuss & Agyeman, 2002). The concept of sustainable behaviour and choice itself implies strategic consumerism, long-term benefits for both the self and the environment (White et al., 2019).

The future of our planet also largely depends on the extent to which brands and industries behave ecologically (Diaconeasa et al., 2021): e.g. sustainable production, logistics, transport solutions, eco-friendly packaging, etc. However, sustainable actions alone are not enough: communication serves as a huge driver towards consumer awareness and more sustainable behaviour (Genç, 2017; Manca & Fornara, 2019). Sustainability will only work if there is public support, and no barriers to behaviour implementation and to constant triggering habitual changes, due to self-managed change is severely limited (Adomßent & Godemann, 2011; Elf et al, 2019).

Generally, *effective communication* is defined as the process of interaction between brands and their audiences, by influencing decision-making processes by encouraging desired attitudinal responses (AbuBakar et al., 2021). *Persuasive communication* is a rather complex, multifaceted and well-studied area of effective communication; influencing values, beliefs and attitudes (Morris et al, 2005; Manca & Fornara, 2019). Persuasive communication is a medium that influences the effectiveness of advertising, mediating a positive communicative effect on attitudes and memory (Morris et al, 2005; Wang et al, 2009; Mas et al, 2014; Akbari, 2015). Within sustainability, there are several definitions. One is *green marketing*, which implies targeting sustainable consumers, promoting green attributes and activities, as well as adopting sustainable-consumer-oriented thinking through green design, green positioning, green pricing, green logistics, marketing waste, green promotion, green alliances (Connoly et al., 2007). Other concepts are *communication about / of / for sustainability* (CaS, CoS, CfS), the difference being that first type refers to communication processes themselves, second type refers to interaction tools, third type is aimed at social change (Genç, 2017). Another definition is *sustainability marketing*, which includes communicative actions aimed at promoting the concept of sustainable development as a vision of future development (Finney, 2014). Another concept, *social marketing*, is an extended inclusive alternative to traditional environmental campaigns, namely a communication method that draws on knowledge of consumer needs and desires with the aim of creating social change, raising awareness of issues, and inspiring behaviour change through changing values and beliefs, making this strategic approach more effective than traditional campaigns (Kollmuss & Agyeman, 2002; Kotler & Lee, 2019). *Traditional, commercial marketing* aims to change audience behaviour for brand benefit, such as increasing sales (Kotler & Lee, 2019; White et al., 2019), and is based on the idea that consumers behave rationally based on the benefits of their choices (Grundey, 2008; Kotler & Armstrong, 2010; Blackwell et al., 2001; Matušínská & Zapletalová, 2021). *Experiential marketing* goes beyond traditional marketing, and looks at consumers as rational and emotional individuals, by assuming that the focus is on experience: consumer is not just informed about the characteristics of a product or service, but engages with the brand and interacts with it in the process of choosing, buying and consuming physically, mentally, emotionally, socially and spiritually, receiving impressions and living experiences (Grundey, 2008). This

study is located at the intersection of social, commercial and experiental marketing: in the short term, it looks at the correlation between advertising and behavioral intentions for pro-environmental behavior change; but in the long-run, it targets also at commercial benefits for the brand following a more effective communication strategy (by changing consumer water behaviour to sustainable, such brand communication is anyway linked to the eventual increase in sales of water appliances, such as taps, shower systems, etc.). And to create an effective experience for consumers, it is necessary to competently study the pre- and post-interaction behaviour, consumer journey, as well as emotional reactions (Morris et al., 2005; Wang et al., 2009).

Considering the above-mentioned definitions, *persuasive communication to changing pro-environmental behaviour in terms of household water consumption* will be defined as brand interaction with consumer, with the aim of changing attitudes towards water consumption, and influencing consumers attitudinal and behavioural responses to save water (Bridges & Wilhelm, 2008; Adomßent & Godemann, 2011; Belz & Peattie, 2012; AbuBakar et al., 2021; Brosch & Steg, 2021).

Intervention strategies based on barriers of sustainable consumer behaviour

Traditionally, any communication persuasion is based on three aspects: source, audience, message (Morris et al., 2005), and is studied with recipient stimulus-response attitudes (Grundey, 2008). Therefore, in order to maximize the effects of communication impact and to introduce changes, it is necessary to analyze target audiences, their perceptions, preferences and weaknesses, barriers and drivers to behaviour change (Belz & Peattie, 2012; Klaniecki & Wuropulos, 2019).

First, it is important to understand how and in what order recipients perceive message information. There are three main stages of information processing: attention and perception (recognition and organizing information into the personal world-view), consumer learning (storing and reproducing the information received), feelings, attitudes and actions (reactions transforming needs and motivations into attitudes and behavioural patterns) (Matušínská & Zapletalová, 2021). In the context of domestic water consumption, communication strategy usually starts with the basic problem of people not being aware of water problems, refusing to accept them, and ignoring the threats associated with the problems; thus, the first step is to change the level of awareness; then guide the audience through the decision-making processes to actions (AbuBakar et al., 2021). In the next steps, behavioural spillover strategy is recognized as effective: it implies that behaviour change starts when influencing personal motivations and preferences, then is followed by the *optimal challenge*: step by step, starting with changes in easy behaviours that will reinforce intention to perform subsequent, more challenging, autonomous behaviours (Elf et al., 2019). Thus, changing behaviour is not an easy, but a long-term and strategic task that requires careful tactical development, because lifestyles consist of habits, values, identities etc., and are very difficult to change (Kollmuss & Agyeman, 2002; Elf et al., 2019).

A dialogue with consumer based on providing information, persuading and reminding is often constructed within the concept of *marketing mix* (Kotler & Lee, 2019). Marketing mix was first published in the work of N.Borden (1964), where the influencing strategy was examined from different perspectives: advertising, personal selling, pricing, packaging, channels, and other marketing elements. The concept is still actively used nowadays as grouped parameters, for the ease of

management: traditionally 4P mix (price, product, promotion, place), which can be expanded to 8P models (with additional elements: people, positioning, processes, physical evidence, productivity and quality, or packaging) (Kotler & Lee, 2019). Researchers argue that direct communication is the most effective tool for sustainability marketing (Bridges & Wilhelm, 2008; Belz & Peattie, 2012), so the promotion aspect is taken as the basis for this study. Promotion involves the optimal combination of different communication elements, in order to better convey the information to the consumer, and achieve the communication objectives (Hakansson & Waluszewski, 2005). Thus, if the fundamental findings are properly used, certain barriers that inhibit behaviour can be turned into drivers that motivate behaviour change, and more effective communication intervention strategies can be developed (Tamar et al., 2021). It is important to remember that when talking about barriers and drivers, they shouldn't be used as single components to change attitudes or behaviour (Kollmuss & Agyeman, 2002). There are factors that influence to a greater or lesser extent, but usually it is a set, a combination of many psychological, social, economic and physical factors that lead to behavioural habits. The most effective interventions are those that change the level of exposure to environmental problems, are capable of being perpetrated by many, and affect behavioural plasticity (Klaniecki & Wuropulos, 2019). Other types of interventions to behaviour change have been studied with a division into structural interventions influencing circumstances, and informational interventions influencing motivation: providing information or education, prompting, tailoring and framing messages (Klaniecki & Wuropulos, 2019). Tailored messages, influencing needs, worldviews and perceived barriers tend to be most effective; influencing positive emotions can also be a great change factor (Klaniecki & Wuropulos, 2019).

So far, many studies tried to identify antecedents of behaviour, and there has been a large number of conclusions regarding how communication can solve the mismatch between pro-environmental attitudes and pro-environmental behaviours; but the topic still cannot be considered well-studied, and contains some gaps in knowledge. For example, in the context of reducing domestic water use, there are no clear conclusions: how to frame messages, how effective it is to use emotional rather than rational appeals, and how brand trust affects communication effectiveness and behavioural intention (AbuBakar et al., 2021).

The literature review in this chapter includes a comprehensive framework of barriers and drivers, and findings on communication interventions. Different but relevant contexts (sustainable behaviour in general and energy use) were reviewed: Kollmuss & Agyeman (2002) based on findings from 45 articles; Klaniecki & Wuropulos (2019) based on 12 case studies in 11 countries; White et al. (2019) based on 320 articles; Sheoran & Kumar (2020) based on 128 articles; and in water conservation context: Grundey (2008); Oatley et al. (2006); Koenig-Lewis et al. (2014); Addo et al. (2019); AbuBakar (2021); Brosch & Steg (2021); Tamar et al. (2021), and others.

Interventions addressing economic and situational barriers

- *Economic factors or weighing costs and benefits* (White et al., 2019) have a very significant impact on consumer choice and behaviour. The more consumers feel they can save money in the short term, the more likely they are to make a choice. However, too low price can discourage: being aware of importance of their own contribution, consumers are willing to pay extra for sustainable choices (White et al., 2019). Finding the golden mean of this factor is not an easy task (Kollmuss & Agyeman, 2002). In the context of water use, it is important that consumers have the perception that the benefits and positives outweigh the drawbacks, negatives and inconveniences of water saving (URS, 2007).

- *Financial incentives* (e.g. financial assistance to residents in water-scarced regions to purchase water-saving technologies instead of wasteful ones) do not play a significant role and are not sufficient to change water-saving behaviours (Dascher et al., 2014). Important: interventions that include banning work worse than nudges, motivations and incentives (Klaniecki & Wuropulos, 2019).

- *Situational factors*: external opportunities to act sustainably that facilitate or complicate pro-environmental actions (economic constraints, taxes, infrastructure, etc.) can significantly affect communication effectiveness (Kollmuss & Agyeman, 2002): structural tools (physical, technical and organizational rewards that change costs, benefits, availability of behaviors,

and perception of control) are very effective with costly or complex behaviors related to habit change (Klaniecki & Wuropulos, 2019).

Interventions addressing social barriers

- *Normative influences* impact self-perceptions and self-social image by following certain behaviours (Sheoran & Kumar, 2020). Social norms (influence of significant others about what is socially (in)appropriate and (dis)approved); social influences (presence, behaviours, and expectations of others); descriptive and injunctive norms (descriptions and prescriptions of what others normally do in a given situation and what is socially approved that cause the desire to behave by following mass-approved behaviour) (Seyranian et al., 2015; White et al., 2019) especially when combined with commitments and feedback (Klaniecki & Wuropulos, 2019), cultural traditions and family customs, are critical agents of influence, and to a great extent shape attitudes and behaviour (Kollmuss & Agyeman, 2002; Sheoran & Kumar, 2020). The use of these factors in the format of individual goal-setting and prompts, and competitive group incentives are very influential strategies in the context of water conservation (Klaniecki & Wuropulos, 2019; White et al., 2019). Another effective strategy is personal provision of feedback with elements of social norms (descriptive and prescriptive), such as in monthly water payment agencies, which forces consumers to comply with these norms (Seyranian et al., 2015).

- *Social identities and association groups* (self-perception in society and attitudes about self as a member belonging to a group, desire to be associated and act as other group members) are highly significant predictors of behaviour change (Seyranian et al, 2015; White et al, 2019). People tend to act through the lens of their identity; it is a time-stable factor (Elf et al., 2019). The use of social desirability factors in communication, i.e. desire to demonstrate status/image to society through more sustainable, socially desirable choices, or following a certain approved behaviour (White et al., 2019; Sheoran & Kumar, 2020), and allowing *dilemmas of the self* to close the gap between the *real* and the *ideal* in social life (Jackson, 2005) can facilitate changes in attitude and behaviour. Articulating social identity

within domestic water conservation can be persuasive by providing information on "who we are" and "how we act" as a community, to raise desire to join (Seyranian et al., 2015).

- *Cultures*: people from different cultures (e.g. loose/tight), with different cultural perceptions (of values, self-interpretation, environmental and historical threats, socialization, everyday situations, etc.), may in some cases have patterns of behaviour (Gelfand et al., 2011), similar evaluation and perception of communication elements, such as emotionality (Oatley et al., 2006). For example, an emotional norm in some cultures can be considered inappropriate, or be not recognized at all (Albers-Miller & Royne, 1999); the three main differential factors are: emotional intensity, choice of emotion and predominance of some emotions over others, regulation of own behaviour (more or less emotional expression) (Oatley et al., 2006). Hofstede (1980) argued that differences are due to anthropological features in different cultures that have developed in different ways, and that decision-making path choices are also influenced by culture (Albers-Miller & Royne, 1999). Also, people who are more future-oriented behave more pro-environmentally (White et al., 2019). Perhaps, a parallel can also be drawn on this factor with Hofstede's division into present-oriented and future-oriented cultures.

- *Locus of control (perceived behavioural control)* is very significant in shaping pro-environmental behaviour; it is the capacity for self-efficacy, or perceived consumer effectiveness i.e. individual perception of personal ability to change situations through own behaviour; the lower this indicator, the greater the impact of significant others (Kollmuss & Agyeman, 2002; Addo et al., 2019). Another form of the same phenomenon is responsibility, meaning that people feel that individual effort is insufficient to affect a global problem, so they deny taking responsibility for the behaviour (Kollmuss & Agyeman, 2002; Sheoran & Kumar, 2020). Perceived self-efficacy is much more significant in influencing behaviour than material incentives, if linked to a specific problem (e.g. drought) (Dascher et al., 2014). Visibility and awareness of behavioural outcomes can significantly influence water conservation: pushing for a sense of self-control and ability to influence the situation (e.g. providing families with visual comparative

reports of personal water use and expenditures) (Dadvar et al., 2021). Interventions following this barrier can take the form of helping consumers become aware of their own efficiency: a convenient visual guide, with conclusions on personal progress in saving or spending, and providing step-by-step information on overcoming the discomfort of individual home water conservation (Dascher et al., 2014; Perren & Yang, 2015; Sheoran & Kumar, 2020; Dadvar et al., 2021).

Interventions addressing personal barriers

- *Personal motivational factors*: social desirability, quality of life, monetary savings, personal norms (perception of actions, products, brands), are the strongest predictors of sustainable water consumption, and can significantly influence other factors: beliefs and awareness of consequences of behaviour, biospheric-altruistic values, pro-environmental water consumption behaviour, etc. (Kollmuss & Agyeman, 2002; Jakubczak, 2019; White et al., 2019; Yıldırım & Semiz, 2019; Sheoran & Kumar, 2020).

- *Ease of decision-making and behaviour*: people are reluctant to making complex decisions, and are more inclined to make choices that require less economic, psychological, cognitive and other costs: they tend to choose what is easier to obtain or perform. For the same reason, those already pro-environmentally oriented may perform certain pro-environmental actions that are easy to obtain, but may neglect more complex actions (Kollmuss & Agyeman, 2002). Communication actions should be complementary to physical capabilities (such as instructions and prompts) (Klaniecki & Wuropulos, 2019).

- *Attitudes* (established global opinions) and *behavioural beliefs* strongly influence behavioural intentions, and may serve as determinants of behaviour (Kollmuss & Agyeman, 2002; Petty et al., 2002; Perren & Yang, 2015; Addo et al., 2019; Tamar et al., 2021). E.g., stronger belief in technological and economic progress or awareness of the environmental problems will not necessarily lead to adopting new behavioural habits, but to making more sustainable choices (even difficult ones, such as supporting

environmental laws) due to opportunity to save money and personal benefits. Beliefs can be formed at the household level: people avoid things they consider inconvenient, unaffordable, incompatible (Sheoran & Kumar, 2020). Consequently, to communicate more effectively, it is necessary to identify the most important attitudes and beliefs of the audience (Petty et al., 2002; Perren & Yang, 2015; Addo et al., 2019).

- *Awareness about global issues and about specific issues* is in most cases not a driver or barrier to pro-environmental behaviour, and is rather not associated with attitude and behaviour change, either in the short- or long-term (Kollmuss & Agyeman, 2002; Seyranian et al., 2015; Addo et al., 2019; White et al., 2019; AbuBakar et al., 2021; Tamar et al., 2021). Nevertheless, awareness may be one of the factors influencing emotional perception, which in turn has a significant impact on behaviour (Kollmuss & Agyeman, 2002). But raising awareness is still important: studies show that low awareness of necessity to reduce water consumption and environmental illiteracy are big problems causing no interest in water issues at all, which leads to unsustainable behaviours, and underestimation of personal contribution and impact on the problem (Jakubczak, 2019; Seelen et al., 2019). Speaking of environmental products, lack of awareness and advertising significantly reduces the likelihood of buying and using them (Sheoran & Kumar, 2020). In other words, consumers are more likely not to choose water-saving appliances if they are unaware of the products and water problems.

- *Knowledge of problems* (systematic knowledge, general knowledge of environmental issues and processes) has an indirect effect on knowledge of action strategies and knowledge of action effectiveness (Frick et al., 2004), which in turn can indirectly influence behaviour through influencing attitudes and values (Kollmuss & Agyeman, 2002; Addo et al., 2019). In addition, some people are aware of water issues and would like to promote change, but have no knowledge on how to behave (Jakubczak, 2019). Specific instructions to act are a modest motivating factor (White et al., 2019); and knowledge-raising campaigns are rather ineffective for changing behaviour (Tamar et al., 2021), and do not contribute to long-term behaviour change (Seyranian et al., 2015; Addo et al., 2019; AbuBakar et al., 2021).

- *Directness of experience*: interaction with a problem (e.g. lack of water in a region) has a stronger influence on attention to problems and behavioural intentions, than indirect experiences, such as awareness or knowledge of existing problems (Kollmuss & Agyeman, 2002; AbuBakar et al., 2021; Diakakis et al., 2021). The most significant role is played by experiences indirectly influencing values: childhood experiences, experiences of pro-environmental destruction, pro-environmental values held by family, pro-environmental organizations, role models (friends, teachers), education (Kollmuss & Agyeman, 2002). In addition, the interpretation of the information received is based on personal experiences and self-references: new information is better remembered if linked to memories: for effective communication, the emphasis must be placed on things most relevant and significant for the audience (AbuBakar et al., 2021).

- *Individual sense of responsibility and priorities*: the higher the level of personal responsibility and consistency of the proposed behaviour with personal priorities, the more likely individuals involve in pro-environmental behaviour (Kollmuss & Agyeman, 2002).

- *Perception of the message (and its individual elements)* can be a barrier or driver, e.g., informational visualization can promote greater emotional engagement and generate more interest or feelings, or the suddenness of change awaited, and aggressiveness of information (the effect on whether people will perceive the problem as necessary for a quick resolution) (Kollmuss & Agyeman, 2002). People tend to react to a sudden change, but gradual changes may be invisible to them, and the reaction may follow in the form of habituation and adherence to a certain behaviour (Kollmuss & Agyeman, 2002). Communication that is too abrupt and requires a rapid change in behaviour can cause negative emotions, fear, denial and message ignorance (Zhang et al., 2020; Brosch & Steg, 2021). Careful perception itself can affect the quality of assimilation of information (White et al., 2019). Messages aimed at perception of public need to be consistent and specific (AbuBakar et al., 2021), e.g. formulated in the form of specific water saving strategies (Addo et al., 2019). Understanding and interpretation are significantly influenced by sequencing, serving to comfortably construct logical orders (Weng et al., 2017). Storytelling as a

narrative style and creativity (novelty, complexity, aesthetics) contribute to attracting, holding attention and enhancing emotional connections with the brand (AbuBakar et al., 2021).

- *Past behaviour, habit formation and temporal discrepancy*: past behaviour (includes the influence of many other internal and external factors) influences future behaviour and can be used as its predictor (Ajzen, 2006; Chaudhary et al, 2017; Gibson et al., 2021), and can explain behavioural control (Ajzen, 2006). Repetitive past behaviour leads to habit formation (Jackson, 2005; Ajzen, 2006). Attitudes and behaviours change over time, and pro-environmental behaviours can fade (White et al., 2019). It is difficult to achieve automaticity of behaviour, so that it persists over time; but repetition and frequent contextual cues can facilitate this (in the form of feedback, additional motivational stimuli, etc.). In addition, for large-scale communication interventions, it is necessary to base them on the most relevant attitudinal and behavioural outcome results. These should be the outcomes strictly related to the specific problem: e.g., studying attitudes towards recycling and re-use would not be relevant for studying behaviours towards reducing energy consumption, as these are radically different areas of study that would not yield the right conclusions, when compared (Kollmuss & Agyeman, 2002).

- *Affective factors*: feelings, cognition, and emotional involvement are both a huge force for change, and a factor that can cause negativity, withdrawal, delegation or neglect as a means of psychological defense. Emotional involvement is a difficult area to study, and has the potential to significantly change attitudes, even in the absence of rational benefits. Studies have investigated the dichotomy of feelings in the context of duty and belonging (AbuBakar et al., 2021), both have a significant impact on behaviour. Another common dichotomy in consumer decision-making is the dominance of affective and cognitive information processing (White et al., 2019).

- *Emotional evaluations* fill the time gap between the moment of exposure (stimulus) and the beginning of cognitive thinking (response) (Grundey, 2008; Weng et al., 2017). They are based on value perceptions and potential risk assessment, and contribute to attitude formation, and trigger a chain of

long-term reactions and behavioural patterns (Marin et al., 2014; Coelho et al., 2016; Brosch & Steg, 2021). People are more likely to adopt new behaviours when they feel strong emotions towards an object (Kollmuss & Agyeman, 2002; AbuBakar et al., 2021). In addition, anticipated emotions or *warm glow* (expectation of positive feelings, emotions and affective reactions as a consequence of taking part in an action or behaviour) are of great importance (White et al., 2019; Brosch & Steg, 2021). Expectation of positive emotions: happiness, pleasure, joy, pride, tenderness, hope, etc. may be more likely to influence and predict pro-environmental behavior than expectation of material, physical and financial benefits following a particular behavior (Jun et al., 2009; Gao et al., 2019; White et al., 2019; Brosch & Steg, 2021; Wang et al., 2021). Negative emotions: fear, anger, sadness, distrust, disgust, etc. can be a very effective motivator of pro-environmental behaviour, but they should not be too intense, otherwise a backlash effect on the behaviour appears (Marin et al., 2014; White et al., 2019); negative emotions contribute to a greater social discussion (Coelho et al., 2016; Wang et al., 2021); they can be used effectively by informing people about consequences of exposure to ignorance; or through visibility and perception of the problem and risks (e.g. for imagining being part of the problem of drought or severe lack of water) (AbuBakar et al., 2021). Therefore, when designing communication, it is important to analyze in advance, what emotions consumer would experience, and plan to create favorable emotions through production of desired associations. E.g., communication that tells consumers how their personal behavioural change makes a difference, and also affecting their social and economic benefits, generates positive emotions and promotes change (AbuBakar et al., 2021). In the absence of knowledge about the problem and solutions, consumer behaviour would be guided by fixed, habitual patterns of behaviour, as well as emotional reactions to other factors (e.g. social) (Brosch & Steg, 2021; Koenig-Lewis et al., 2014). For example, driven by emotion, one may be inclined to make an environmental purchase in the absence of the right choice nearby, even if the choice seems to be overvalued (Koenig-Lewis et al., 2014). Emotions are important predictors of consumer pro-environmental behaviour (Morris et al., 2005), but it is a very difficult

variable to measure, and understudied in the context of sustainability, climate change (Koenig-Lewis et al., 2014; Brosch & Steg, 2021) and water conservation (AbuBakar et al., 2021). By examining emotional responses, it is possible to significantly explain how pro-environmental behaviour changes, even in the absence of understanding individual consequences of behaviour, in order to develop the necessary communicative interventions (Koenig-Lewis et al., 2014; Brosch & Steg, 2021), e.g. through entertainment (water conservation game promoting relaxation, distraction, pleasure, hedonism), or environmental appeals (which work better than emotions related to material benefits) (AbuBakar et al., 2021).

- *Individual self:* includes self-concept (desire to perceive self in a certain way and following the behaviour of that image; material possessions as an additional extension of self-identity), self-interest (benefits for the self) and self-motives, self-consistency (improving self-esteem through consistent sustainable actions that are considered acceptable and good), self-efficacy (perceived belief that carrying out the behaviour will have the intended impact) (White et al., 2019). In order to change behaviour, consumers need to clearly understand and be aware of the positive impact of their choice or behaviour (Koenig-Lewis et al., 2014). If there are no visible positive effects, consumers will remain loyal to their old habits and attitudes, seeking to satisfy needs based on symbolic and utilitarian values (Koenig-Lewis et al., 2014; Brosch & Steg, 2021).

- *Values*: altruistic orientation (concern about reducing suffering of others), egoistic (concern about reducing suffering and harm of self), biospheric (concern about reducing suffering and destruction in the non-human world), hedonic (concern about personal pleasure, aesthetics and comfort), empathy (Grundey, 2008; Jun et al., 2009; White et al., 2019; Tamar et al, 2021). The higher the levels of these factors, the higher the level of concern for the environment. Other types influencing sustainable behaviour are: utilitarian (benefits customer observes in the product) (Grundey, 2008; Jun et al., 2009), and eudemonic (getting satisfaction from behaviour and action) (Brosch & Steg, 2021). Egoistic orientation comes first, followed by altruism and biospheric values (Kollmuss & Agyeman, 2002; Marshall et al., 2019; Judge et al., 2021); some studies argue that hedonic values play

an increasing role (Grundey, 2008). People with strongly biospheric values are most associated with receiving positive emotions from communication in the context of water issues, while people with predominantly hedonic values have fewer positive emotions from such biospheric messages (Judge et al., 2021). However, it is not effectively to target only one type of value factor in communication (White et al., 2019; Tamar et al., 2021). The higher the selfishness factors, the lesser pro-environmental behaviour, so it is particularly important to consider selfish-value motivators, such as desires and needs (Kollmuss & Agyeman, 2002). Similarly, a perceived threat to values (e.g. personal views and habits, threats to material comforts) may influence denial of environmental information (Kollmuss & Agyeman, 2002). Values can largely serve as a determinant of behaviour and are relatively stable over time (Tamar et al., 2021), but are difficult to study as they still change, and it is not always clear how these values emerge. There are traits correlated with values that are good predictors of adherence to pro-environmental actions, such as: extraversion, agreeableness, conscientiousness, environmental concern, mindfulness (White et al., 2019).

- The more *personal needs* are satisfied (e.g. according to Maslow's hierarchy of human needs; or simply, having enough time, money and energy), the more open a person is to adopting new pro-environmental behaviours (Kollmuss & Agyeman, 2002). However, behaviour based on the level of satisfaction of personal needs contains a complex psychological component and many additional influencing factors, e.g. richer countries (where consumer needs are satisfied) have a more negative impact on the environment. Speaking of more complex needs: self-esteem, belonging, personal control, self-efficacy, and optimism should be satisfied; and when an individual is aware of the suffering of others, and of self-influence the alleviation of that suffering; then concerns about changing personal behaviour raise. Altruism Theory by Schwartz (1977) and the Altruistic Behaviour Model by Stern et al. (1993) are based on these findings (Kwasny et al., 2020).

- *Personal feedback on actions taken*: reinforcements about ecological behaviour, which can be intrinsic (self-motivation, satisfaction from

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behaviour, positive anticipated emotions, etc.), or extrinsic (social acceptance of behaviour, monetary rewards, etc.) (Kollmuss & Agyeman, 2002). Feedback is very effective if individually tailored, especially in the context of energy saving (Klaniecki & Wuropulos, 2019).

- *Gap between attitudes and actual behaviour* (Koenig-Lewis et al., 2014; White et al., 2019): the more pro-environmental attitudes, the more pro-environmental behaviour; however, there is a huge discrepancy in attitudes and actual actions, e.g., even consumers inclined to having a more positive attitude towards environmental and sustainable products do not will to change behaviour (Koenig-Lewis et al., 2014), therefore measuring attitudes and expecting behaviour change is incorrect, and this is a problem for marketing and communication research (Kollmuss & Agyeman, 2002; Perren & Yang, 2015; White et al., 2019), because consumer choice is a complex multi-attribute search for compromise between what consumer desires and gets (Kotler & Armstrong, 2010; Rokka & Uusitalo, 2008). In communication, this can be turned into advantage: to induce cognitive dissonance and encourage consumers to address discrepancy between attitudes and actions (Perren & Yang, 2015).
- *Demographic and background factors*: age and income can be influential factors in water conservation; also gender (women are more emotionally involved and open to new experiences, more responsive and eager to make environmental contribution) (Jakubczak, 2019; AbuBakar et al., 2021); years of education (more educated people are more liberal and behave with greater awareness of environmentalism, but education does not necessarily serve as a precondition for behaviour change) (Kollmuss & Agyeman, 2002; White et al., 2019).

Thus, raising awareness and providing information about the problem and solutions to increase knowledge is very important but not enough to directly influence behaviour change. Behaviour change is influenced by a combination of personal, social and external environmental factors (Jakubczak, 2019). The most significant influences among personal and internal factors on changes in water consumption are: personal norms, emotions (especially, positive emotions and warm glow), values (i.e. egoistic, biospheric, altruistic, hedonic),

experiences, attitudes, habits, cultural characteristics. Social norms that play significant role are: perceived behavioural control, identities, image. Main influencing external factors are: benefits, the ease and accessibility of carrying out the behaviour. Most effective communication interventions are those based on the above factors, and: message tailoring, goal-setting, prompts, clear comparative visualization of behaviour, competitive incentives. It is important to remember about the gap between attitudes and behaviour: for long-term effects, permanent nudges are necessary (Fielding et al., 2012).

Next step is to select change factors and intervention tools, and evaluate the effectiveness of the chosen interventions (Klaniecki & Wuropulos, 2019). Proper behaviour change in individual water conservation is a long and a very complex multifaceted process that requires a multidisciplinary approach (AbuBakar et al., 2021). Knowledge of the above key factors and their combinations can significantly influence the outcome of communication strategies and it is therefore important to consider them in the design phase of communication interventions (i.e. messages and audience targeting) in order to more effectively inspire changes in consumer attitudes, intentions and behaviour (White et al., 2019).

Intervention strategy: Message tailoring

Message tailoring has been studied in relation to changing behaviour (Manca & Fornara, 2019), including pro-environmental behaviour (Koenig-Lewis et al., 2014), health problems and changing attitudes towards healthier lifestyles (Petty et al., 2002), social advertising (Casais & Pereira, 2021), and other sub-areas. The strategy of tailoring messages for a specific person or group is based on similar principles to targeting strategies (including personal characteristics: gender, location, interests, etc.), and can be explained as using a combination of information pieces, to obtain the most effective communication result (Petty et al., 2002; Paige Pope et al., 2017). The key difference is that tailoring can target a group of people, as well as individuals (e.g. consumers tend to choose products that contain the first letter of their name) (Petty et al., 2002). Tailoring strategy is well-studied and used in both online and offline campaigns (Leonidou & Leonidou, 2009; Guttman, 2015;

Manca & Fornara, 2019; Zhang et al., 2020), and when used with appeals, relevant to audience's concerns, can increase persuasion and likelihood of following the behaviour in the message (Petty et al., 2002), but this area also has gaps (Petty et al., 2002). For example, the short- and long-term effects of this strategy on persuasion are not well-studied (Petty et al., 2002). In research on behaviour change and persuasive communication, tailoring can be grouped depending on many factors, among which are:

- Different psychological variables (i.e. attitude, group identity, affect/cognition, values, anxiety, self-efficacy, perceptions of time, etc.) (Petty et al, 2002);

- Repetition & variation (helps finding the most effective advertising options when shown repeatedly) (Wang et al., 2009);

- Image and text tailoring: such variation can influence attitudinal and behavioural change, including environmental context (Rumble et al., 2017);

- Tailoring by the factors of rationality and emotionality (e.g. Stafford & Day, 1995; Albers-Miller & Royne, 1999; Petty et al., 2002; Akbari, 2015; Guttman, 2015). This framework most fully contributes to the creation of effective communication based on understanding consumer behaviour and considering people make choices based on rational or emotional preferences (Albers-Miller & Royne, 1999; Akbari, 2015; Seunghwan & Bob, 2018); thus, looking at communication from both traditional and experiential perspectives (Grundey, 2008).

It can be advantageous if messages are tailored by rationality and emotionality. Prior to the 1970s, and further in traditional marketing, emotions tended to be ignored (Morris et al., 2005), and consumer thinking was considered to be cognitive and logical, so exposure was tailored with orientation at properly aligned learning of message receivers; but in more current studies much attention is paid to consumer emotionality and sensibility, as they can serve as a key to persuasion (Akbari, 2015). In addition, historically, emotional response is programmed in human nature, as one of the key factors to survival and adaptation; emotions are often not controlled but an integral part of human responses, which drive choice and behaviour, and in general, even a cognitive choice cannot be separated from emotional evaluation and influence (Plutchik, 1980; Morris et al., 2005). Hence

application of this knowledge about emotions has great potential, and the dichotomous appeal approach (rationality and emotionality) must be considered as an inherent aspect of communication tailoring strategy.

Communication appeals: Rational and Emotional Message Tailoring

Message appeal strategy involves message tailoring, in which communication appeals can be divided into emotional and rational, thus choices are made based on rational or emotional assumptions, and communication serves as a tool to the desired response or attitude change (Jun et al., 2009; Leonidou & Leonidou, 2009; Akbari, 2015; Guttman, 2015; Weng et al., 2017; Zhang et al., 2020). At the same time, rationality and emotionality can be highly influential but remain unrecognized by consumers (Albers-Miller & Royne, 1999; Guttman, 2015). Leonidou & Leonidou's studies (e.g., 2009) are among the most significant in revealing and comparing appeals *(Figure 1)*.

Figure 1. Emotional and Rational Appeals (Leonidou & Leonidou, 2009)

Comparison Base	Rational Advertising Appeals	Emotional Advertising Appeals
Stimulating Mechanism	Focusing on product features and/or measurable benefits or reasons for selecting a particular product or brand, based on a rational thinking process.	Stirring up positive (e.g., joy, love, pride) or negative (e.g., fear, anger, shame) emotions that will motivate purchase through an affective response.
Consumer Needs Addressed	Targeting mainly practical, functional needs for a product or service, such as economy in purchase, dependability of quality, and efficiency in operation.	Targeting mainly consumer's psychological, social, or symbolic needs, as in the case of obtaining sexual attraction, social approval, or pride of possession.
Type of Target Audience	Affecting consumers who better appreciate logic, information, and facts in making their purchasing decisions.	Appealing to consumers who have less appreciation of factual information, and higher emotional involvement.
National Cultural Context	Working better in high cultural contexts, where it is important to use direct speech to highlight clearly, logically, and reasonably the merits of the product.	Working better in low-context cultures, since direct speech is considered argumentative and annoying, compared to the smoother effect of emotional elicitation.
Products Advertised	Applying more to utilitarian products, such as high-technology consumer products and industrial goods.	Applying more to "value-expressive" products, such as convenience products and specialty goods.
Information Transmitted	Offering more information, consisting of objective statements that can be verified by consumers independently, thus making the advertisement credible.	Containing less information, that is mainly subjective and thus open to individual consumer interpretation.
Consumer Recall	Attracting consumer attention and recall through the factual information provided, often described as dull and uninteresting.	Attracting consumer attention by greater appeal and interest, leading to more enhanced brand memory, especially if the content is vivid.
Persuasive Effectiveness	Achieving better persuasiveness when eliciting thoughtful comparison of arguments by appealing to beliefs the recipient already holds.	Achieving persuasiveness only if the message recipients believe that the appeal is "issue-relevant" and the emotional intensity is at the right level.

The traditional view on human perception assumes that people think primarily cognitively, evaluating usefulness of choice options, so some researchers consider that messages should be based on cognitive, rational components (Koenig-Lewis et al., 2014). Rational communication, or informative communication is aligned with the "learn-feel-do" effect hierarchy (Vaughn, 1986, as cited in Jun et al., 2009), and involves communicating in a straightforward and understandable way (Oñate et al., 2018), for ease of cognitive processing (Albers-Miller & Royne, 1999; Jun et al., 2009; Leonidou & Leonidou, 2009), convincingly and consistently proving choice relevance and linking it to a particular context for a quick interpretation (Oñate et al., 2018), providing key argumentative information and most important attributes (Albers-Miller & Royne, 1999; Seunghwan & Bob, 2018), facts that contribute to fulfilment of personal needs when shaping preferences and attitudes (Marin et al., 2014; Oñate et al., 2018), motivating choice and helping to evaluate information and arguments through objective material and functional characteristics (Albers-Miller & Royne, 1999; Kotler & Armstrong, 2010; Jun et al., 2009; Andreu et al., 2015; Weng et al., 2017; Matušínská & Zapletalová, 2021). At the same time, consumers should not be overloaded with information, as this can negatively affect attitudes toward the brand (Mas et al., 2014). A rational message should provide a sense of purchase security, so technically, it must be constructed in a straightforward and logical language (Leonidou & Leonidou, 2009; Mas et al., 2014). An effective rational message explains reasons to choose, even if in reality they are unjustified and overvalued (Mas et al., 2014). Arguments can be constructed in different ways, most commonly: deductive (for learning about how an advertised product works; advantages and benefits from getting it); rhetoric (providing a reason for the benefit of purchasing the product by using metaphors, comparisons, etc.; analogical (comparing a product with others by certain characteristics) (Oñate et al., 2018). In rational communication, the main role is given to direct explanation, providing choice benefits: through comparison, using Unique Selling Proposition (USP), by a preemptive method; that is, focused on specific characteristics, and providing objectivity, functionality and utilitarianism (Stafford & Day, 1995; Grundey, 2008; Jun et al., 2009; Leonidou & Leonidou, 2009; Kotler & Armstrong, 2010; Akbari, 2015; Jovanovic et al., 2016; Oñate et al., 2018). Another definition suggests that to be considered rational, a message must contain at least one of 14 items: price, content, performance, quality, availability, product variety, usage

instructions, special offers, appearance (packaging), warranty, safety, nutrition, independent research, competitive advantage (Marin et al., 2014). Pollay (1983), as cited in Albers-Miller & Royne (1999), talks about classification of appeals among which the rational ones used in advertising include: effective, convenient, cheap, natural, wisdom, productivity, tamed, independence, healthy, durable, modern, technological, safety, neat. Akbari (2015) refers to Stern et al. (1981); Davies (1993); Kotler (2003); Verma (2009) and other theorists, and reveals that rationality includes, from product perspective (physical attribute perspective): properties and qualities, ability to solve consumer problems, productivity; from informative, incentive offer and proof perspectives: features and advantages over other products or services, facts and reasons; educational and logical perspectives.

However, people do not always base their attitudes and behaviour on rational arguments and cognitive reasoning, but also irrationally and inconsistently follow empiricism, sensuality and emotionality; thus, by ignoring the emotional component, conclusions about behaviour cannot be comprehensive, and emotional appeals must be included in communication (Albers-Miller & Royne, 1999; Koenig-Lewis et al., 2014). Emotion has been studied by Oatley et al. (2006), citing definitions of emotion by other theorists since 1884, among which are conclusions that emotion can be seen as a psychological state reflecting individual attitudes and values, and emotional response is itself rational and predictable in terms of reaction to cope with problems (many emotional responses are well-studied and categorized by the following behaviour, e.g. behaviours following fear). Likewise, emotions can explain behaviour in a pro-environmental context (Koenig-Lewis et al., 2014). Emotional communication is aligned with the "feel-learn-do" effect hierarchy (Vaughn, 1986, as cited in Jun et al., 2009) involves message transmission in an indirect or suggestive way, intentionally creating barriers to understanding the context, prompting reflection, and searching for connections, thus in most cases complicating interpretation (Oñate et al., 2018), evoking positive or negative emotions, feelings and impressions, emphasizing subjectivity, emotionality and values, usually expressing intangible values, and product characteristics referred to socio-psychological factors (Leonidou & Leonidou, 2009; Kotler & Armstrong, 2010; Mas et al., 2014; Jovanovic et al., 2016; Weng et al., 2017; Oñate et al., 2018; Seunghwan & Bob, 2018; Matušínská & Zapletalová, 2021). Emotional communication can indirectly

teach behaviour by evoking associations with rewards or punishments for certain behaviours, and is sufficient to influence consumer behaviour and attitudes toward a brand or information, regardless of consumer preferences (Chaudhuri & Buck, 1995; Akbari, 2015). Even when one does not process a message with high involvement, an emotional connection to something pleasing may attract attention and serve as a nudge to prefer the information advertised (Petty et al., 2002). However, recipient must then be aware of the issue, the product, or its storyline in order to be able to infer and understand the message, and for this, emotional appeal is a strong means of nudging to an action; therefore, the ultimate (re-)interpretation of messages may vary in different people (Oñate et al., 2018). It is important to measure emotions and anticipated emotions in order to predict the following behaviour more accurately (Koenig-Lewis et al., 2014).

Emotional communication can also focus on brand personality (Akbari, 2015), but usually consumer plays the main role, and message revolves around their emotions, motives, dreams and fantasies (Leonidou & Leonidou, 2009; Mas et al., 2014; Oñate et al., 2018), meaning that target action is to satisfy consumer desires, to make them feel good (Jun et al., 2009; Andreu et al., 2015). Consumers start associating specific lifestyles and stories, certain representatives and other attributes with the product or brand, thus it becomes an identity itself (Ogilvy, 1963, as cited in Jun et al., 2009; Akbari, 2015), and such communication can contribute to better perception of the message, provided calling to relevant and right associations (Chaudhuri & Buck, 1995). Lack of specificity, vague discourse and the use of weak stimuli, can stimulate greater emotional response (positive or negative), involvement and reflection (Oñate et al., 2018; Akbari, 2015; Albers-Miller & Royne, 1999). The narrative often begins in a context unrelated to the product, and the product is presented as a means of solving the problem, or can be not presented at all; thus, it is often not what is said and shown, but what is not said and not shown, but can be guessed (Oñate et al., 2018).

Guttman (2015) suggested that the following types of emotional appeals are more memorable, and may have a greater influence on behaviour: appeal to reason; negative and positive emotions; use of threats and humor (humor works less for persuasion, but more for memorizing). Emotions can be seen not in isolation, but as a complex mechanism that can simultaneously consist of contradictory states, such as anxiety and hedonism (Koenig-Lewis et al., 2014). Positive appeals (e.g. appeals

to pleasure, pride, happiness) make people feel pleasant after communication, and can also influence behaviour (Akbari, 2015; Durmaz et al., 2015; Guttman, 2015). Koenig-Lewis et al. (2014) describe that in previous studies, negative emotions worked best as a predictor of pro-environmental behaviour change (e.g. sustainable transport). This is a contradictory finding, as in sustainability issues, stimulating negative feelings (e.g. appealing to fear, anger, disgust, guilt, regret) may be the key to effective communication (especially in the fear plus risk combination, triggering the emotion of personal anxiety, as the subconscious tends to process such messages faster; but on the other hand, the duration of such effect and behaviour change remains unpredictable, and there is a risk of further psychological shielding and ignorance (Koenig-Lewis et al., 2014). Akbari (2015, p.480) mentioned main types of emotional appeals according to Moriarty (1991): "Excitement, fear (danger, personal embarrassment), family (love, protection), guilt, love (affection, romance), nostalgia, pleasure (humor, happiness, joy), poignancy, pride, relief, sorrow (grief, suffering)", and according to Hoyer & MacInnis (1997): "Love, wanting, joy, hope, excitement, daring, fear, anger, shame or rejection". Pollay (1983), as cited in Albers-Miller & Royne (1999), speaks about classification of appeals, among which the emotional ones used in advertising include: distinctive, traditional, enjoyment, youth, modesty, plain, adventure, freedom, vain, status, nurturance, family, ornamental, dear, popular, magic, relaxation, maturity, morality, humility, frail, untamed, sexuality, security, association, succorance, community. In pro-environmental studies, the most significant predictor is the emotion of proximity and love for nature; and, the stronger the emotion perceived, the more likely the long-term behaviour change (Koenig-Lewis et al., 2014). Furthermore, values can serve a basis, e.g.: altruistic values; moral bias (responsibility and (un)acceptance of environmental norms, emotions towards environmental laws); social values; eudemonic attributes (goals, beliefs), etc. (Koenig-Lewis et al., 2014).

On the one hand, traditional marketing argues that consumer elaborates information cognitively and logically, and makes decisions based on rational choices, which conditions the choice of a rational strategy as primary and emotional as a possible application (Aaker & Myers, 1982; Grundey, 2008; Jun et al., 2009). In this point of view, rational messages are studied as more appealing, evoking more trust and sympathy, and contributing to a more favorable overall attitude, regardless of the

advertisement location and elements used (Holbrook, 1978; Jun et al., 2009; Zhang et al., 2020). Rational appeals are able to elicit the desired attitudes and behaviours when consumers are in a cognitively oriented state, i.e. aiming at interaction, choice, purchase, etc., and when the processing and amount of thought about information is high, rational appeals contribute more to persuasion and reassurance (Petty & Cacioppo, 1986; Stafford & Day, 1995; Lin, 2011; Andreu et al., 2015; Jovanovic et al., 2016; Weng et al., 2017). Furthermore, emotional appeals can successfully attract and set the tone of the relationship between consumers and brands, and are considered a good reinforcement of rational arguments, but they are insufficiently effective on their own; and are also ineffective if one has no knowledge about the issue or product (Petty & Cacioppo, 1986; Andreu et al., 2015; Weng et al., 2017; Matušínská & Zapletalová, 2021). In this case, one is involved when elaboration or intensity of thoughts on the issue is higher, when the message argument is somehow relevant to the person; and elaboration is lower when the message argument does not fit into the picture of the world, and is not meaningful (Um, 2008; Andreu et al., 2015).

On the other hand, emotional appeal is crucial and can work effectively separated from rationality (Weng et al., 2017). Arguments that evoke an emotional response are prioritized by human perception systems, so consumer is more likely to draw attention to an emotional message, which is also a good starting point for further personal reflection (Brosch & Steg, 2021). Emotional arguments help to vividly attract attention and form favorable attitudes, and might be further supplemented with rational arguments to reassure and support consumer's thoughts, bring objectivity and confidence in the correctness of choice, strengthen attitudes and relationships with the brand (Aaker & Stayman, 1992; Stafford & Day, 1995; Mas et al., 2014; Weng et al., 2017; Matušínská & Zapletalová, 2021). Emotionality in communication influences interpretation of new information and helps consumers update or reinforce the vision of the self through the brand and its attributes, shapes memories and therefore is a good basis for long-term relationship and brand attachment (Jun et al., 2009; Jovanovic et al., 2016; Weng et al., 2017; Brosch & Steg, 2021). Thus, it is emotionality that shapes consumer behaviour and influences the purchase decision, especially in cases of uncertainty about the choice (Mas et al., 2014).

Communication mix of rational and emotional appeals is one of the options, which can also have many benefits and huge potential; however, this is a new researched area that needs to be studied more, and is more comprehended for studying (Oñate et al., 2018; Brosch & Steg, 2021; Matušínská & Zapletalová, 2021). It has been found that primary communication shapes initial attitudes toward the product and brand, and subsequent communication also has a great impact, reinforcing or reassuring and helping to create a long-term connection with the brand, so it is beneficial to think of a holistic picture of interventions (Aaker & Stayman, 1992; Stafford & Day, 1995; Hawkins et al., 2003; Weng et al., 2017). For example, Oñate et al. (2018) discussed some models, such as the Persuasive, or Empathetic Rational Model, which engages consumers by rational appeals, increasing attention to the message and shaping memories through emotional elements; or the Social Creativity and the Fame Model, respectively suggesting that communication is based on an active relationship between the brand and the audience, or aimed at entertaining the audience, seeking to influence societal conversations, discussions and reach, therefore containing more of an emotional component, and promoting high levels of involvement; or the Emotional Cultural Model, focusing on *adblocking* environment by circumventing advertising blindness, using highlights of social cultural aspects (e.g. injustice, equality, social pressure), which adds new, cultural value (as an emotionality factor), to the value of the product itself (as a rationality factor).

In this perspective, the theoretical findings are contradictory: it is still unclear which of the appeals is more effective, and how different conditions influence perceptions (Andreu et al., 2015). Thus, the message appeal can be driven by several factors, e.g. by types of products and services: high-risk products, meaning low level in the market competitiveness, should be presented with rational appeal in the message; while low-risk products, with low prices and high level of competitiveness, should rather be based on emotional communication (Stafford & Day, 1995; Mas et al., 2014). According to the types of value, a utilitarian product should rather be promoted through rationality; and more value-bearing products through emotional appeals (Albers-Miller & Royne, 1999). According to the division by awareness level, rationality is studied to be more effective with high level of awareness of issue, brand or product activity, and with a high desire to make a purchase; emotional appeal will work better for mass audiences to raise awareness, without the need to

choose a product advertised (Mas et al., 2014). In addition, there are findings regarding the impact of brand, advertising message or issue involvement: the higher the involvement, the more rational the message has to be in order to change behaviour; with low level of involvement, emotionality is a better tailoring factor (Petty & Cacioppo, 1986; Akbari, 2015), or with high involvement, negative emotions serve as a greater driver; and with low involvement, positive emotions must be used (Morris et al., 2005). However, the connection between the level of involvement and appeals has been studied not enough, or implies contradictory conclusions (Akbari, 2015). In addition, it is not entirely clear what exact emotions (e.g., positive or negative) in the context of sustainability serve as better predictors to behaviour (Koenig-Lewis et al., 2014).

Thus, there exists much theoretical and empirically tested information on the effectiveness of using both rational and emotional appeals separately and in combination, but it remains understudied how to translate this knowledge into certain sustained interventions, and develop an effective communication strategy, drawing on interdisciplinary experiences from behavioural economics and psychology (Poortinga et al., 2019; Brosch & Steg, 2021).

Ethical considerations

It is important to remember that the overall ethics of persuasive communication remains controversial. However, environmental problems cannot be solved by not intervening in the problem (Jackson, 2005). So, there is a global question: whether it is ethically to include emotionality in communication, especially in light of the variety of propaganda, greenwashing (incomplete or untrustworthy communication), and demarketing (communication that discourages consumers from behaving pro-environmentally, leading to mistrust and reactive resistance) (Petty et al., 2002; Betz & Peattie, 2012; Koenig-Lewis et al., 2014; Mas et al., 2014; Seyranian et al., 2015; Manca & Fornara, 2019; Sheoran & Kumar, 2020; AbuBakar et al., 2021).

For example, facts that are clothed in emotionality, even if aimed at solving world problems, i.e. convincing people to lead more sustainable lifestyles, can be perceived as propaganda (Manca & Fornara, 2019). Or, explaining the

environmental benefits of products is often perceived as an element of marketing management to increase sales (Koenig-Lewis et al., 2014), or is able to steer consumers towards new, greener consumption formats that may be based on different values (e.g. hedonic) and promote alternative, green lifestyles that paradoxically encourage even greater consumerism and materialism (Belz & Peattie, 2012; Font & McCabe, 2017). In this case, transparency can be a significant factor that increases consumer trust and helps to see and evaluate the validity of sustainable brand choices: "Transparency equals trust" (Forbes, 2021), and trust (and its measurable components: competence and source reliability) is a crucial element of communication, the basis of message persuasion and brand value (AbuBakar et al., 2021). Thus, all these ethical considerations need to be considered when designing transparent sustainability communication, which should not contradict its purpose, but should aim to effectively and efficiently addressing global issues, not limiting consumer choice, but helping, motivating and inspiring; being a tool for an active dialogue between company and consumers, to facilitate consumer choice and relationships based on trust (McDonagh, 1998; Koenig-Lewis et al., 2014; Klaniecki & Wuropulos, 2019).

Theoretical Framework

Research on consumer response to communicative messages began in the 1950s (Morris et al., 2005; University of Twente, 2019). There are still many models that can be used to better understand and explain persuasive effects of communication, and to study the effects of interventions on pro-environmental behaviour (University of Twente, 2019). For example, Agenda-Setting Theory by McCombs & Shaw (1972) helps to analyze the impact of media on groups of people and shaping of public opinion and agendas through media. The Uses and Gratifications Theory by Blumler & Katz (1974) studies satisfaction of human needs (cognitive, affective etc.) through media content; this theory would be suitable to study how communication content works in social media. Expectancy Value Theory by Fishbein & Ajzen (1975), in which human behaviour can be influenced through communication by attaching significance to expectations and value to the purpose of behaviour. Uncertainty Reduction Theory by Berger & Calabrese (1975) uses manipulation of motivational uncertainty to predict behavioural patterns. Kahneman & Tversky (1981) developed Message Framing Theory, which tests message frames but does not explain interdependencies between frames and other variables; and other models. For this study, a combination of Elaboration Likelihood Model (ELM) by Petty & Cacioppo (1981) and Theory of Planned Behaviour (TPB) by Ajzen (2011) was chosen.

Elaboration Likelihood Model (ELM)

ELM *(Figure 2)* considers previous models of attitude change through communication, and has created a new hierarchy of states of transition from unawareness to elaboration and attitudes; it is a linear flexible structure, in which different antecedents, namely motivation, ability to process information, perceived quality of argument and sender credibility, can serve as a source of complex effects on perception, elaboration and attitude change, in order to better understand the effectiveness and persuasiveness of communication (Petty & Cacioppo, 1986; Petty

et al., 2002; Morris et al., 2005; Wilson, 2014; Durmaz et al., 2015; Vezeau et al., 2015; Manca & Fornara, 2019). ELM has been used in sustainability research areas (e.g. in Wilson, 2014; Lazard & Atkinson, 2015; Vezeau et al., 2015; Rumble et al., 2017; Manca & Fornara, 2019). With the ELM model, it is possible to analyze the effectiveness of appeal strategy (Durmaz et al., 2015). Traditionally, the main disadvantage of ELM is that the model cannot test relationship between attitudes and behaviour change (Miller et al., 2018), while other studies prove it is possible to study the direct or mediation effect (see "Research Framework") (Wilson, 2014).

Figure 2. ELM (Petty & Cacioppo, 1986)
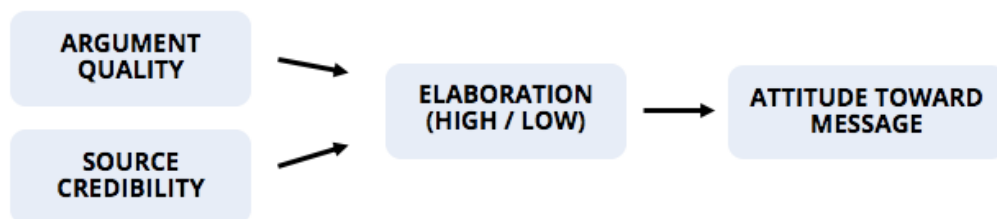
Theory of Planned Behaviour (TPB)

With TPB *(Figure 3)*, behavioural intentions and behaviours can be predicted with high accuracy by analyzing motivational and socio-psychological constructs: attitude to behaviour, subjective norms and perceived behavioural control (Ajzen, 2006). TPB model helped study environmental intervention strategies, including water conservation (Perren & Yang, 2015; Chaudhary et al., 2017; AbuBakar et al., 2021), energy savings and carbon reduction (Chen, 2016); recycling (Chan & Bishop, 2013); climate change issues in general (Masud et al., 2016), and others.

Figure 3. TPB (Ajzen, 1991)
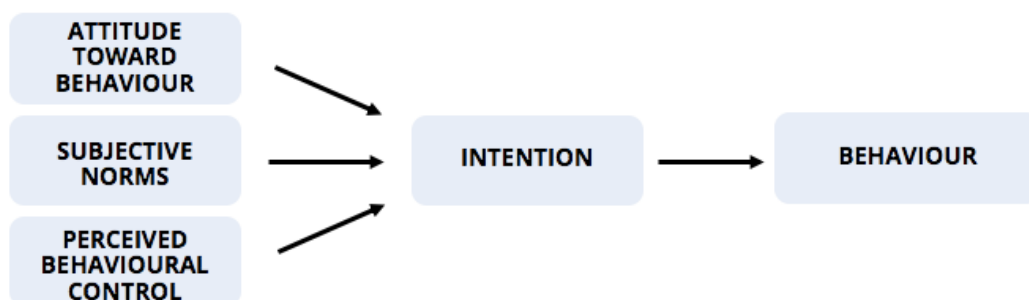
Research Framework (ELM + TPB)

ELM and TPB together are used as a combined framework for assessing interventions, linking and guiding the effect from a message to behaviour, where different variables of ELM are connected to communication perception, message elaboration and evaluation, and TPB variables are used to assess changes in intentions and behaviour (Wilson, 2014). Combining ELM and TPB makes the study completer and more suitable for using the results in practice, as it connects measurable communication factors and socio-psychological factors that are inseparable in reality of perception. This will help analyze how consumers shape water-saving intention based on the strategy of message tailoring by dichotomous division into rational and emotional appeals.

The following ELM variables are used for the current study: argument quality, source/sender credibility, attitude towards advertisement. TPB variables: attitude to behaviour (which is degree of evaluation of the behaviour in question relative to the specific water-saving behaviour; can be positive, negative or with other connotations); subjective norms (perceived social pressure to (not) perform the behaviour); perceived behavioural control (perceived ease or difficulty of performing the behaviour, combining a reflection of past experiences and expected obstacles to the behaviour) (Ajzen, 1991). The higher the values of all three factors, the stronger the intention to perform the behaviour (Ajzen, 1991). If at least one of the determinants of the model is unfavourable, the probability of a change in behaviour is reduced (AbuBakar et al., 2021). As intention is the only direct predictive antecedent of behaviour (Ajzen, 2006), and it was not possible to measure the actual behaviour in the current study, intention to behave was taken as a final dependent variable.

The models (ELM and TPB) can be connected at the level of attitudes (Wilson, 2014; Meng & Choi, 2019) *(Figure 4)*. Independent TPB variables can theoretically serve as a mediator, or there can be also a direct connection from ELM variables to behaviour (Wilson, 2014) (in this case, behavioural intention); the effect of a mediated or a direct connection was yet not studied in the area of water saving, though was studied in a related area of energy consumption (Wilson, 2014). The theory suggests there are several variables that can be added as explanatory, such as past behaviour (Jackson, 2005; Ajzen, 2006; Chaudhary et al, 2017; Gibson et

al., 2021) or direct experience (AbuBakar et al., 2021). As at the marginal level, attitude has cognitive and affective components to it, additional variables of emotions are not needed in this study.

Figure 4. Research Framework
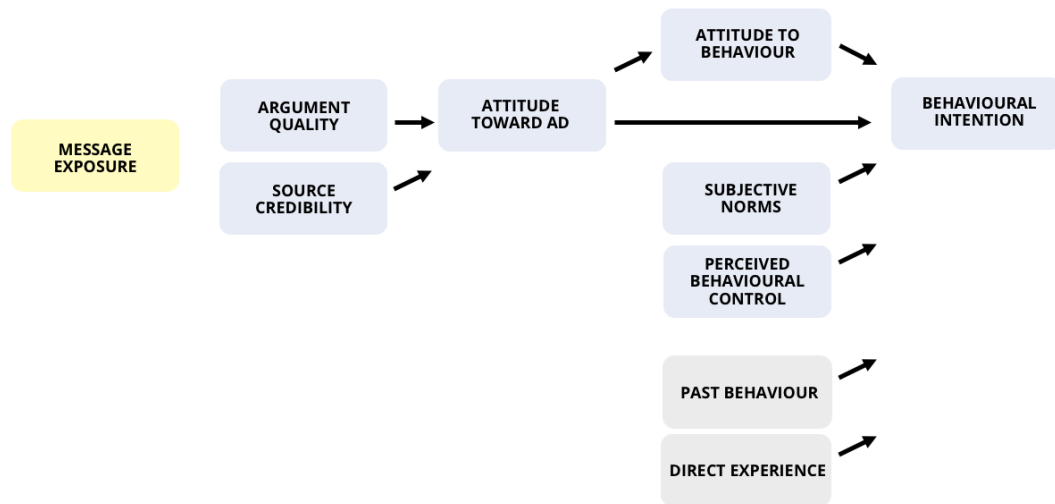
Summary, Hypotheses

Despite large amount of theoretical and empirically tested information on effectiveness of using message tailoring strategies, translating this knowledge into certain sustained interventions, and developing an effective communication strategy, this area remains not enough-studied (Brosch & Steg, 2021). Theoretical findings on appeal approaches with ELM lead to two contradictions: which appeal (rational or emotional) is preferable. Adding TPB and additional variables allows, on a more general level, to test the influence of the significant factors on intention to behave more sustainably in relation to household water use, and to compare their significance with communication. To answer the research questions and resolve these gaps and contradictions, the following hypotheses, grounded in the reviewed literature, were raised:

H1a: Attitude toward advertisement (communication exposure) has an indirect significant effect on behavioural intention through attitude to behaviour.
H1b: Attitude toward advertisement (communication exposure) has a direct significant effect on behavioural intention through attitude to behaviour.

Figure 5. H1a, H1b
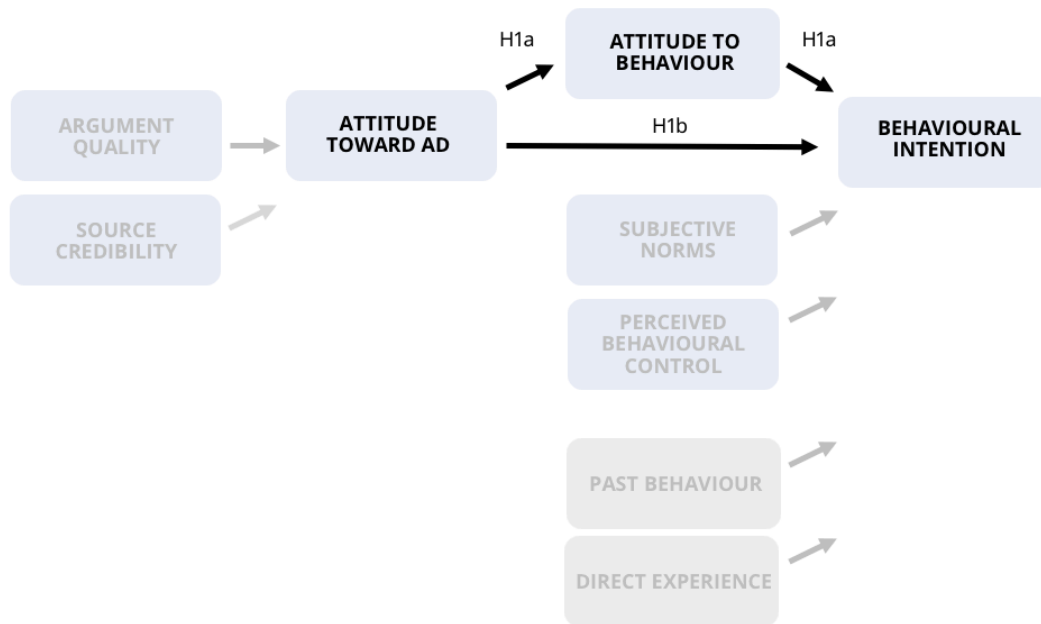
H2a: (If H1a/H1b is supported) Rational exposure has a stronger influence (direct / indirect) on behavioural intention, than emotional.

H2b: (If H1a/H1b is supported) Emotional exposure has a stronger influence (direct / indirect) on behavioural intention, than rational.

Figure 6. H2a, H2b
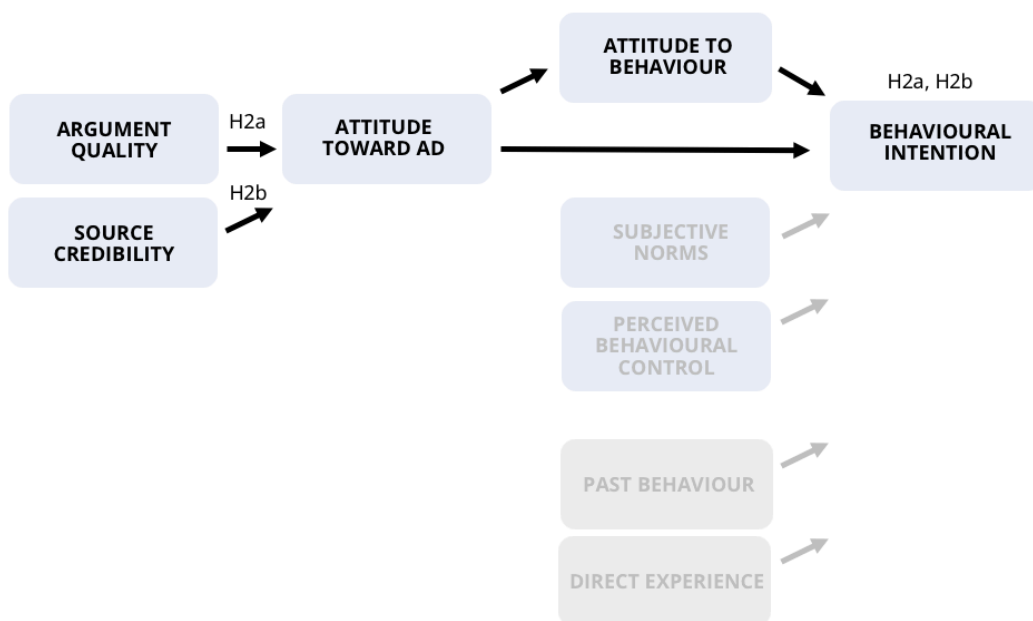
H3a: When exposed to the rational appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables (attitude to behaviour, subjective norms, perceived behavioural control).

H3b: When exposed to the emotional appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables (attitude to behaviour, subjective norms, perceived behavioural control).

H3c: Not depending on the appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables (attitude to behaviour, subjective norms, perceived behavioural control).

Figure 7. Hypotheses 3a, 3b, 3c
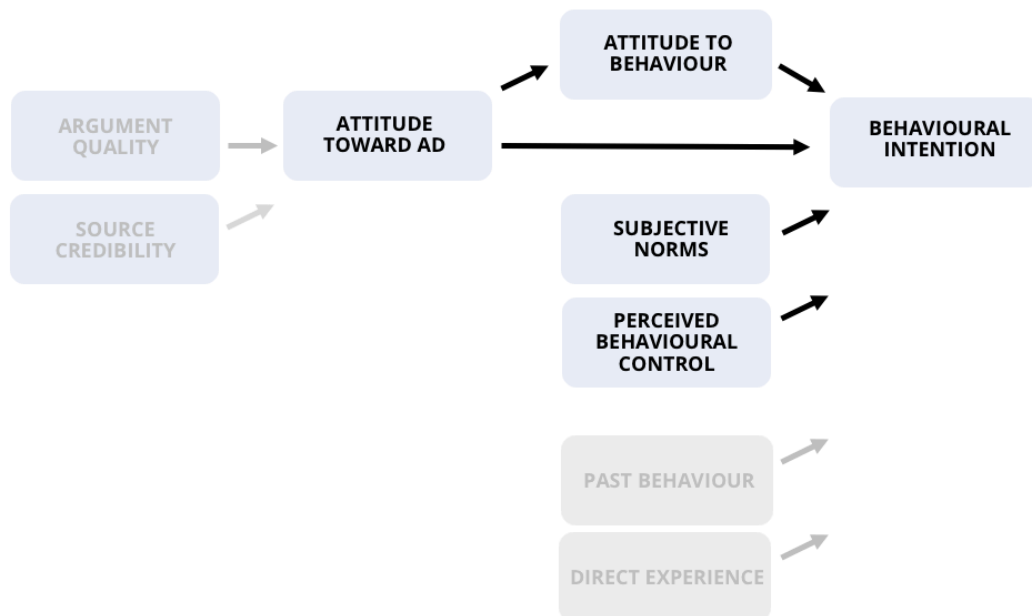
H4a: When exposed to the rational appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than additional variables (direct experience, past behaviour).

H4b: When exposed to the emotional appeal, attitude toward advertisement have a greater positive effect (direct / indirect) on behavioural intention than additional variables (direct experience, past behaviour).

H4c: Not depending on the appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than additional variables (direct experience, past behaviour).

Figure 8. Hypotheses 4a, 4b, 4c
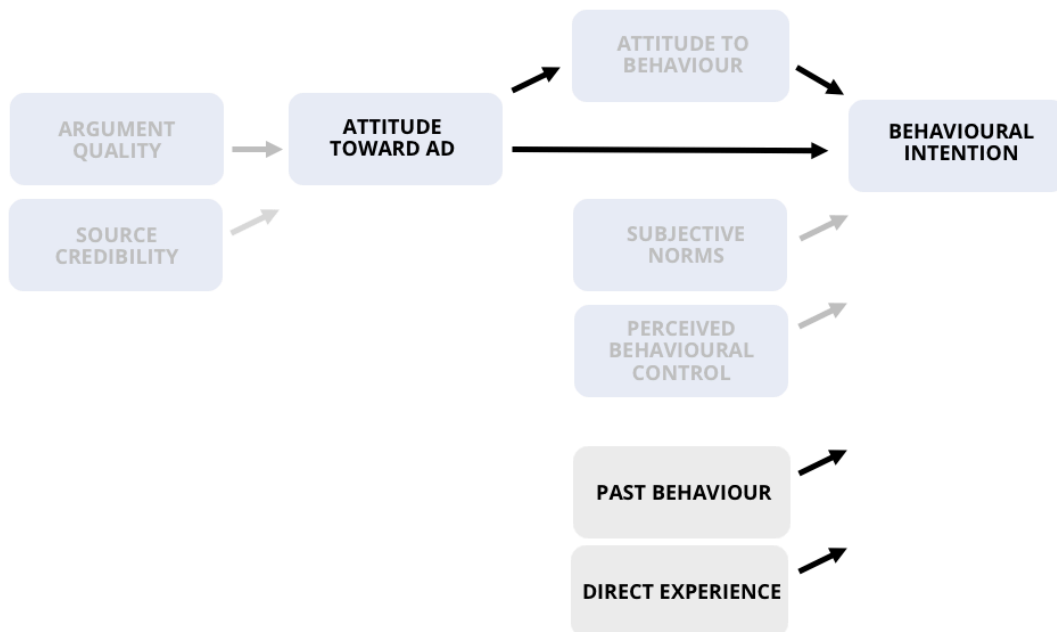
Empirical Method

Scientific approach

Communication studies are built on theories that explain the communication processes from different perspectives. The causal relationships of communication behavior can be interpreted in terms of socio-psychological theories, especially the *Socio-psychological paradigm* proposed by R.Craig (1999). This theoretical framework is able to explain behavior in terms of changes in internal psychological states (e.g., attitudes or emotions) depending on the influence of emergent effects (e.g., media communication, or social influence) (Craig, 1999). Following the chosen paradigm, a quantitative research method was used in the empirical part of this study. Using a survey, the study examines how appeals in a communication message interact with message effectiveness, thereby exploring the ability to influence consumer intention in the context of reducing water consumption.

Design and Procedure

The experiment consists of two stages: a pre-test (two iterations) and a survey.

Pre-test experiment

The aim was to identify the valid messages for the primary experiment. For creating the message appeals (rational and emotional), the results from the literature review were implied. To measure the perceived level of rationality or emotionality of the appeal, bipolar scale was used. The minimum number of respondents was a small sample of the sample size (10%) (Ajzen, 2006; Connelly, 2008), which counted to not less than 13 participants.

Pre-test#1 was regarded as unsuccessful, and was stopped when the number of respondents was 5, as already two people perceived the messages wrong (1 out of 5 perceived a rational message as emotional; 1 out of 5 perceived an emotional

message as rational) *(Figures 9-11)*. Thus, the messages needed to be re-formulated.

In Pre-test#2, 18 participants were shown two re-formulated messages each, and the term rationality / emotionality was explained. The perceived level of rationality and emotionality was calculated for each answer *(Figures 12-14)*. Majority answered correctly: 15 out of 18 perceived a rational message as rational; 16 out of 18 perceived an emotional message as emotional. Though theory gives direct definitions of what is rational or emotional, and in most cases, target audience perceives messages as supposed, appeals are perceived subjectively. Therefore, manipulation check procedure must be included in the main survey.

Survey experiment

The aim was to answer research questions by testing hypotheses. A randomized experiment included an online survey with questions and message exposure. Convenience sampling approach was used (SurveyCircle, SurveySwap online tools, and additionally, the link was shared on social media platforms: LinkedIn, Facebook, Instagram). The method is sufficient and widely used in social, marketing and environmental studies, despite the risk of over- and under-representations of the sample groups. The main objective was to recruit respondents who matched the target audience: as water reduction communication is aimed at a very wide audience, anyone over 18 and fluent in English could become a respondent; more precise targeting was not used. Minimum sample size: $N>50+8m$ ($m =$ number of independent variables) (Tabachnick & Fidell, 2013). For this research, the minimum was considered to be 122 respondents for each exposure group, as there are 9 independent variables. In order to gain the required minimum in each experimental group in the presence of a bounce rate, number of responses was tracked at the collection stage. Although this study was carried out along with IKEA's interest, it was not sponsored or manipulated in any way.

For ethical reasons and for reducing social desirability bias, respondents accepted the consent form to anonymity and confidentiality. They got informed on the general research aim, which included risks of priming effect; but ELM considers a warning of message content as not significantly biasing the attitudinal answers

(Petty & Cacioppo, 1986). The questions were based on the scales of the previous studies to ensure validity and reliability. All the questions were obligatory to avoid missing data, potential bias and imputation (Pallant, 2016), except for the last open-ended question, where respondents could leave any comment. The questionnaire consisted of 10 sections for variable-items, with 33 questions for variables; as well as 6 questions to collect socio-demographic data *(Figure 15)*. Two additional variables (direct experience and past behaviour) were chosen because the previous studies concluded they could have a strong influence on changes in intention, and they have already been tested with ELM and TPB (Ajzen, 2006; Chaudhary et al, 2017; Diakakis et al., 2021; Gibson et al., 2021). A 5-point semantic differential Likert scale was mainly used in the survey, as it helps to obtain a reliable result (Joshi et al., 2015), and provides an easier response process for respondents, and has no major disadvantages compared to the 7-point scale in terms of reliability (Aybek & Toraman, 2022).

Figure 15. Structural design of the survey

Item	Model	Operationalization
Direct experience: Water scarcity risk perception (Diakakis et al., 2021)	Additional variable	Perception of climate change (here: water issues) importance and importance of the risks associated with it (Diakakis et al., 2021).
Past behaviour (Ajzen, 2006)	Additional variable	The behavior of interest, occurred prior to the experiment, in terms of its target, action, context, and time elements (Ajzen, 2006).
Subjective norms (Sheoran & Kumar, 2020)	TPB	Perceived expectations of significant others, giving rise of social pressure: friends, family members and other social groups, which may be based on use/avoidance by significant others, and the influence of lack of awareness/advertisement and social media (Perren & Yang, 2015; Sheoran & Kumar, 2020).
Perceived behavioural control (Masud et al., 2016)	TPB	Individual evaluation of the easiness / difficulty to achieve the desired outcome (Perren & Yang, 2015; Masud et al., 2016).
Message exposure, manipulation check	ELM	—
Attitude toward Ad (MacKenzie & Lutz, 1989)	ELM	Affective response or pre-disposition to respond to the particular exposure stimulus at the time of exposure (revealing individual favourable / unfavourable attitudes), which does not however refer to behavioural response (Fishbein & Ajzen, 1975; MacKenzie & Lutz, 1989).
Argument quality (Bhattacherjee & Sanford, 2006)	ELM	Perceived persuasive strength of arguments embedded in an information message; is usually an aspect of the central route of elaboration (Petty & Cacioppo, 1986; Bhattacherjee & Sanford, 2006).
Source credibility (Bhattacherjee & Sanford, 2006)	ELM	Perceived persuasive credibility and trustworthiness of the communication source; meta-information about the message; is usually (but not only) an aspect of the peripheral route of elaboration (Petty & Cacioppo, 1986; Bhattacherjee & Sanford, 2006).
Attitude to behaviour (Perren & Yang, 2015)	TPB	Overall individual evaluation of the outcomes of an action (Perren & Yang, 2015).
Behavioural intention (Meng & Choi, 2019)	TPB	Traditionally, the longitude-dimension empirical studies include behaviour as a final stage of TPB; in some studies intention is used as the primary outcome measure (Perren & Yang, 2015).
Background factors	—	—

Analysis

Data analysis method

The analysis of the main experiment was carried out using the SPSS-V26, with the extension of PROCESS-V4.1 (Hayes, 2013). Only 100% complete valid questionnaires were used in the analysis. The preliminary analysis was conducted based on frequency and descriptive statistics, for total sample and split into condition groups (rational and emotional). The hypotheses tests were also conducted for total and condition group samples, based on correlation analysis and regression, including T-Test, Sobel test and frequency analysis components.

Preliminary analysis

After the data cleaning, 346 valid responses remained (100% finished). Respondents were randomly divided into two groups: out of the valid answers, 179 participants were shown an advertisement with the rational appeal, and 167 respondents were exposed to the emotional advertisement. As in the rational condition group 141 out of 179 participants perceived the rational advertisement as "very rational" or "somewhat rational", and in the emotional condition group 144 out of 167 respondents perceived an emotional appeal as "very emotional" or "somewhat emotional", only these respondent answers which passed the manipulation check (285 in total) were taken to the further analysis steps *(Figure 16)*. It is important to consider that 61 answers were "neither rational nor emotional", which is 17.6% of all, among which 33 answers (54%) were from the rational condition group and 28 (46%) from the emotional group; these answers were not taken to the further steps of the analysis, as they serve as arbitrary zero point (Carifio & Perla, 2007), which cannot be interpreted for group selection, and does not reduce the minimum sample size of each group. Neutral or medium responses to the other questions were analyzed.

Figure 16. Responses that passed manipulation check
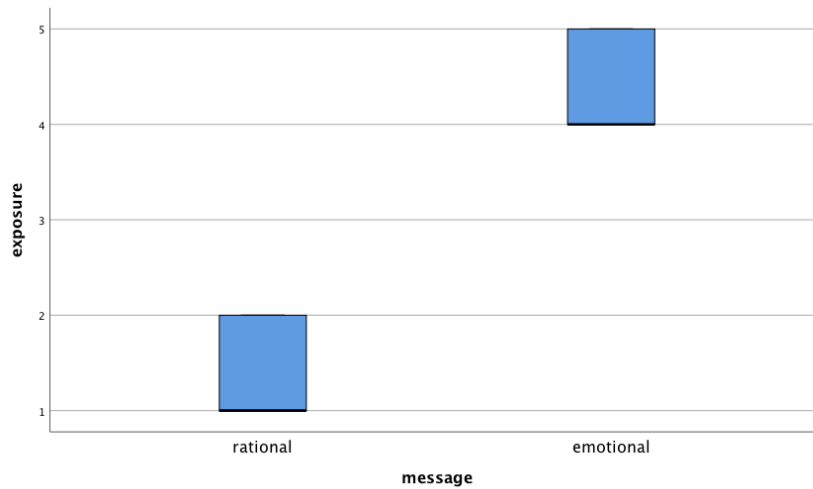
Index variables. In order to compose one variable out of several, Cronbach Alpha was checked, which shows composite reliability of the scale items, and then the Factor analysis was run, to check correlations. For all eight index variables, scales were reliable (Cronbach Alpha >0.7; there were significant correlations between the items of the supposed same variable); multicollinearity was not observed (in case correlation exceeds 0.8, they must be excluded, due to explaining the same thing), KMO test was also successful (all values >0.5) (Pallant, 2016), which allowed to transform these variables into index-variables *(Figure 17)*.

Figure 17. Internal reliability

Item	Cronbach Alpha	N of items
Direct experience	0.809	4
Perceived behavioural control	0.831	3
Attitude toward behaviour	0.805	4
Subjective norms	0.807	4
Argument quality	0.828	4
Source credibility	0.882	4
Attitude to Ad	0.924	5
Behavioural intention	0.810	3

Descriptive statistics. Final sample consisted of 170 females (60%) and 105 males (37%), other 10 were non-binary or preferred not to mention their gender (3%).

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Majority was of age 25-34 years (41%) and 18-24 years (35%), SD=0.993, skeweness=1.123 (highly skewed), and the highest age was 55-64 years (3.5%). The majority of respondents were with a high level of educational background (52% with 4-year degree and 31% with professional degree). 60% of respondents work full or part-time, and 22% are students. Geographical distribution: 38% were from Middle Europe, 23% from North Europe, 19% from UK, 12% from Asia, and the rest 8% from South Europe, US and Australia. 41% of respondents get less than EUR19,000 per year per household SD=4.112, skewness=0.860 (normal skewness), 14% preferred not to answer this question. Majority of respondents (69%) had direct experience of the water problems or feel the problems are going to directly influence them. 19% strongly agreed and 34% agreed they had been taking everyday action to save water around the home recently; 28% didn't do any individual water saving actions; 19% gave an intermediate answer *(Figure 18)*.

Some variables have skewness (symmetry) and kurtosis (peakedness) of distribution, which explains the slight positive or negative deviation of the general shape of distribution *(Figures 19-57)*. Pallant (2016) refers to such skewed situations as a frequent case, which does not imply a measurement error or bias, but the underlying nature of some constructs: all data will be retained. Besides, such skewedness in the data can already speak about the trends among the sample: subjective norms is negatively skewed (-0.328), while all the other variables have a positive skewedness, which can explain that people are not too oriented at subjective norms when thinking of water saving. Moreover, for all variables (both in total, and divided into condition groups) mean and 5% trimmed mean are very similar, which also underlines that the data can be kept for the further analysis. There are no outliers or extreme values in the data.

Hypotheses testing

Correlation analysis

The strength and direction of a linear relationship between variables was checked with Pearson correlation coefficient (Pallant, 2016). Positive significant relations mean that if one variable decreases or increases, the other tends to increase or decrease as well. There are statistically significant relations between the variables *(Figures 58-63)*. As supposed, in total and in condition groups separately, there are relations among ELM variables: AQ — AA, SC — AA; and among TPB variables: AB — BI, PBC — BI, but no significant relation between SN — BI (only in the emotional condition group slight significance is visible). SN have a negative or a no-correlation effect with the other variables, meaning that it either doesn't have a relation, or one variable decreases with the positive change of the other. Both of the additional variables (DE and PB) are positively related to BI.

Figure 58. Correlations, total

	DE	PB	PBC	SN	AQ	SC	AA	AB
Direct experience	—							
Past behaviour	0.386**	—						
Perceived control	0.263**	0.230**	—					
Subjective norms	-0.118*	-0.186**	-0.017	—				
Argument quality	0.095	0.122	0.363**	0.143*	—			
Source credibility	0.202**	0.299**	0.259**	0.018	0.516**	—		
Attitude Ads	0.173	0.127*	0.258**	0.006	0.722**	0.569**	—	
Attitude behaviour	0.139*	0.041	0.232**	-0.119*	0.357**	0.264**	0.434**	—
Intention	0.225**	0.373**	0.321**	0.043	0.431	0.439**	0.449**	0.313**
N = 285								

Figure 59. Correlations, rational condition group

	DE	PB	PBC	SN	AQ	SC	AA	AB
Direct experience	—							
Past behaviour	0.535**	—						
Perceived control	0.246**	0.283**	—					
Subjective norms	-0.351*	-0.307**	-0.066	—				
Argument quality	0.026	-0.017	0.271**	0.104	—			
Source credibility	0.275**	0.404**	0.257**	-0.243**	0.001	—		
Attitude Ads	0.021	0.118	0.266**	-0.021	0.617**	0.222**	—	
Attitude behaviour	0.192*	0.234**	0.300**	-0.339**	0.272**	0.250**	0.369**	—
Intention	0.251**	0.489**	0.398**	0.157	0.148	0.342**	0.296**	0.376**
N = 141								

Figure 60. Correlations, emotional condition group

	DE	PB	PBC	SN	AQ	SC	AA	AB
Direct experience	—							
Past behaviour	0.228**	—						
Perceived control	0.263**	0.176*	—					
Subjective norms	0.081	-0.090	0.040	—				
Argument quality	0.196*	0.033	0.396**	0.218**	—			
Source credibility	0.209*	0.250**	0.220**	0.193*	0.630**	—		
Attitude Ads	0.182*	0.143	0.200*	0.073	0.693**	0.633**	—	
Attitude behaviour	0.119	-0.114	0.149*	0.037	0.358**	0.223**	0.440**	—
Intention	0.247**	0.298**	0.230**	0.194*	0.491**	0.434**	0.453**	0.236**
N = 144								

Model validation

Multiple linear regression helped validating the ELM and TPB theories individually and in combination, also adding the additional variables, by supporting variable causality. Multiple regression is divided into two condition groups: rational and emotional, and is analyzed for total sample.

First, dependent variables were checked for the normality of distribution (Shapiro-Wilk, Kolmonogov-Smirnov $p<0.05$) *(Figure 64)*, all the independent variables were checked for the absence of multicollinearity (VIF<3) *(Figures 65-72)*.

In the rational condition group, ELM part *(Figures 73-80)*, correlations of independent variables (AQ, SC) and the outcome variable (AA) were tested for the predictivity effect (Pearson correlation>0.3): AQ (0.617) has a significant predictive power towards AA, SC (0.222) doesn't predict AA. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.430, which means the model explains 43% of the variance in the dependent variable (AA), AdjRsq=0.422, $p=0.000$, Anova $p=0.000$. Standard-Beta coefficient is used to compare variables, if significant, and to assess which independent variable is a more important predictor for the dependent variable. Part correlation coefficient shows unique contribution of the variable to the model: AQ shows significance and has the most contribution (StB=0.617, $p=0.000$, Part=0.617), in comparison to SC (StB=0.222, $p=0.000$, Part=0.222). To sum up, argument quality has a significant effect on attitude to advertisement, but source credibility doesn't predict attitude to advertisement, even though is correlated to it.

In the rational condition group, TPB part *(Figures 81-88)*, correlations of independent variables (AB, AA, PBC, SN, DE, PB) and the outcome variable (BI)

were tested for the predictivity effect (Pearson correlation>0.3): AB (0.376), PBC (0.398), PB (0.489) have a significant predictive power towards BI, DE (0.251), SN (-0.157), AA (0.296) don't predict BI. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.373, the model explains 37% of the variance in the dependent variable (BI), AdjRsq=0.345, p=0.000, Anova p=0.000. AB (StB=0.097, p=0.018, Part=0.164), PBC (StB=0.053, p=0.007, Part=0.186), PB (StB=0.405, p=0.000, Part=0.330) show significance, PB has the most contribution, in comparison to AA (StB=0.071, p=0.103), SN (StB=0.055, p=0.668), DE (StB=0.055, p=0.603), which are not significant. To sum up, attitude to behaviour, perceived behavioural control and past behaviour have a significant effect on behavioural intention, but attitude to advertisement, subjective norms and direct experience don't predict behavioural intention, and are not correlated to it significantly.

In the rational condition group *(Figures 89-94)*, AB might be a mediating variable between ELM and TPB models, as well as there might be a direct effect of AA on BI (which was checked above). Thus, the regression model for checking AA→AB relation was run. Correlation of independent variable (AA) and the outcome variable (AB) was tested for the predictivity effect (Pearson correlation>0.3): AA (0.369) has a significant predictive power towards AB. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.136, the model explains only 13.6% of the variance in the dependent variable (AB), AdjRsq=0.130, p=0.000, Anova sig.=0.000. AA shows significance of contribution (StB=0.369, p=0.000, Part=0.369). To sum up, attitude to advertisement has a significant effect on attitude to behaviour.

With these conclusions, the renewed model for the rational condition group was prepared *(Figure 95)*.

Figure 95. Renewed model for the rational condition group

Research Framework: rational condition group (N=141)

In the emotional condition group, ELM part *(Figures 96-103)*, correlations of independent variables (AQ, SC) and the outcome variable (AA) were tested for the predictivity effect (Pearson correlation>0.3): AQ (0.693) and SC (0.633) have a significant predictive power towards AA. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.544, the model explains 54.4% of the variance in the dependent variable (AA), AdjRsq=0.537, *p*=0.000, Anova *p*=0.000. AQ shows significant contribution (StB=0.488, *p*=0.000, Part=0.379), SC is also significant (StB=0.325, *p*=0.000, Part=0.252). To sum up, both argument quality and source credibility have a significant effect on attitude to advertisement.

In the emotional condition group, TPB part *(Figures 104-111)*, correlations of independent variables (AB, AA, PBC, SN, DE, PB) and the outcome variable (BI) were tested for the predictivity effect (Pearson correlation>0.3): only AA (0.453) has a significant predictive power towards BI, AB (0.236), PBC (0.230), SN (0.194), DE (0.247), PB (0.298) don't predict BI. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.318, the model explains 31.8% of the variance in the dependent variable (BI), AdjRsq=0.288, which is too low and means that additional input variables are not adding value to the model, *p*=0.000, Anova *p*=0.000. AA (StB=0.337, *p*=0.000, Part=0.292), SN (StB=0.178, *p*=0.014, Part=0.176), PB (StB=0.244, *p*=0.002,

Part=0.227) show significance, AA has the most contribution, in comparison to AB (StB=0.089, *p*=0.274), PBC (StB=0.074, *p*=0.333), DE (StB=0.082, *p*=0.283), which are not significant. To sum up, attitude to advertisement has a strong effect on the behavioural intention; subjective norms and past behaviour show significance but no direct effect on behavioural intention; attitude to behaviour, perceived behavioural control and direct experience don't predict behavioural intention, and are not correlated with it significantly.

In the emotional condition group *(Figures 112-117)*, AB might not be a mediating variable between ELM and TPB models, as AB is not correlated and does not have any effect on BI, and AA is the only significant predictor of BI in the emotional model; the regression effect of AA on AB will be checked. Pearson correlation showed that AA (0.440) has a significant predictive power towards AB. Plot and scatterplot were checked for linearity (no deviations), as well as Cook's coefficient (<1). Rsq=0.193: the model explains only 19.3% of the variance in the dependent variable (AB), AdjRsq=0.188, *p*=0.000, Anova *p*=0.000. AA shows significance of contribution (StB=0.440, *p*=0.000, Part=0.440). To sum up, attitude to advertisement has a significant predictive effect on attitude to behaviour.

With these conclusions, the renewed model for the emotional condition group was prepared *(Figure 118)*.

Figure 118. Renewed model for the emotional condition group

Research Framework: emotional condition group (N=144)

53
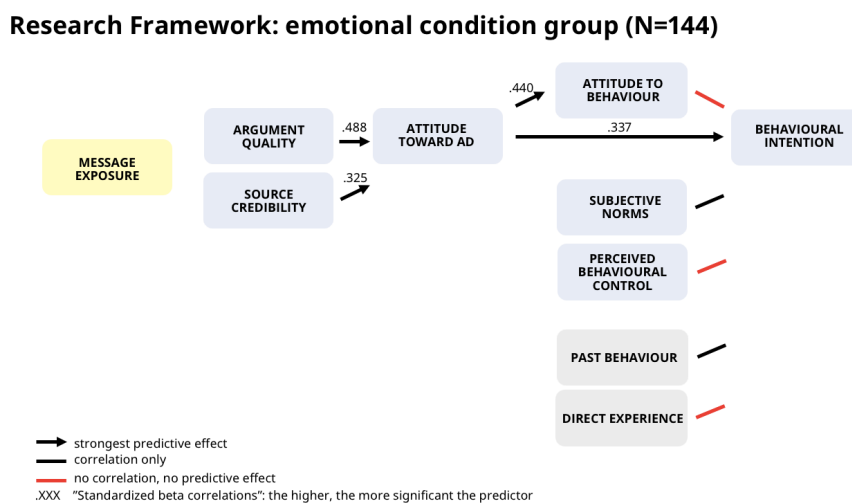
Due to the difference in the statistical outcome with division into condition groups, multiple regression analysis was run for all the valid answers, without condition group division.

For the total sample, ELM part *(Figures 119-127)*, correlations of independent variables (AQ, SC) and the outcome variable (AA) were tested for the predictivity effect (Pearson correlation>0.3): AQ (0.722) and SC (0.569) have a significant predictive power towards AA. Plot, scatterplot and Cook's coefficient were checked. Rsq=0.574, the model explains 57.4% of the variance in the dependent variable (AA), AdjRsq=0.571, p=0.000, Anova p=0.000. AQ (StB=0.584, p=0.000, Part=0.500) and then SC (StB=0.267, p=0.000, Part=0.229) show significant contribution. To sum up, both argument quality and source credibility have a significant effect on attitude to advertisement.

Nevertheless AQ and SC had a significant positive influence on the attitude to advertisement (in emotional group and in total; for rational condition group there was only correlation observed, no direct effect), in the ELM they are traditionally used to assess the level of elaboration of the message (Petty & Cacioppo, 1986; Petty et al., 2002), and therefore were supposed to work as a model manipulation check: rationality explains cognitive perception and higher elaboration (argument quality, in this case), and emotionality explains lower elaboration (source credibility) (Um, 2008; Kotler & Armstrong, 2010; Andreu et al, 2015; Weng et al, 2017). Though the current outcome was unexpected, and was probably caused by the limited choice of intervention texts, it was not assumed in the main hypotheses, and will not be further needed: additional manipulation check was also run, and thus used as main for a more effective group conditioning. Another reason for such an outcome can be that the model assesses the level of elaboration, which in case of an internet survey could have been increased because respondents were focused on taking the survey. Despite this outcome, the ELM part of the model showed the necessary correlations, and can be considered as valid.

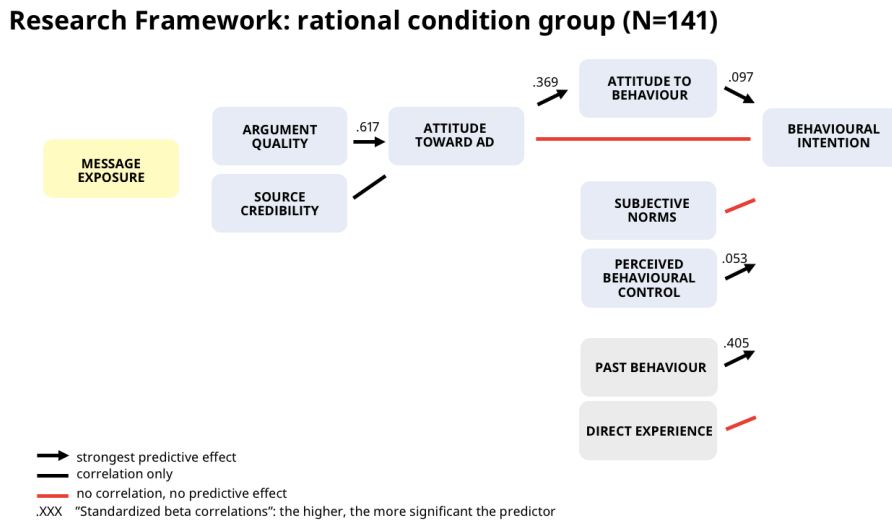**For the total sample, TPB part** *(Figures 128-135)*, correlations of independent variables (AB, AA, PBC, SN, DE, PB) and the outcome variable (BI) were tested for the predictivity effect (Pearson correlation>0.3): AB (0.313), AA (0.449), PBC (0.321), PB (0.373) have a significant predictive power towards BI; SN (0.043), DE (0.225) don't predict BI. Plot, scatterplot and Cook's coefficient were checked.

Rsq=0.354, the model explains 35.4% of the variance in the dependent variable (BI), AdjRsq=0.340, *p*=0.000, Anova *p*=0.000. AB (StB=0.144, *p*=0.010, Part=0.126), AA (StB=0.311, *p*=0.010, Part=0.273), PBC (StB=0.128, *p*=0.016, Part=0.117), SN (StB=0.123, *p*=0.014, Part=0.119), PB (StB=0.303, *p*=0.000, Part=0.271) show significance, AA and PB has the most contribution, in comparison to DE (StB=0.046, *p*=0.387), which is not significant. To sum up, attitude to behaviour, attitude to advertisement, perceived behavioural control, past behaviour have a strong effect on the behavioural intention; subjective norms show significance but no direct effect on behavioural intention; direct experience doesn't predict behavioural intention, and are not correlated with it significantly.

For the total sample *(Figures 136-141)***,** the significance of causality between AA→AB was also checked, as in this model AB might be a mediating variable between ELM and TPB models. AA (Pearson=0.434) has a significant predictive power towards AB. Plot, scatterplot and Cook's coefficient were checked. Rsq=0.189, the model explains only 18.9% of the variance in the dependent variable (AB), AdjRsq=0.186, *p*=0.000, Anova *p*=0.000. AA shows significance of contribution (StB=0.434, *p*=0.000, Part=0.434). To sum up, attitude to advertisement has a significant predictive effect on attitude to behaviour.

With these conclusions, the renewed model for the total sample was prepared *(Figure 142)*.

Figure 142. Renewed model for the total sample

Research Framework: total sample (N=285)

55
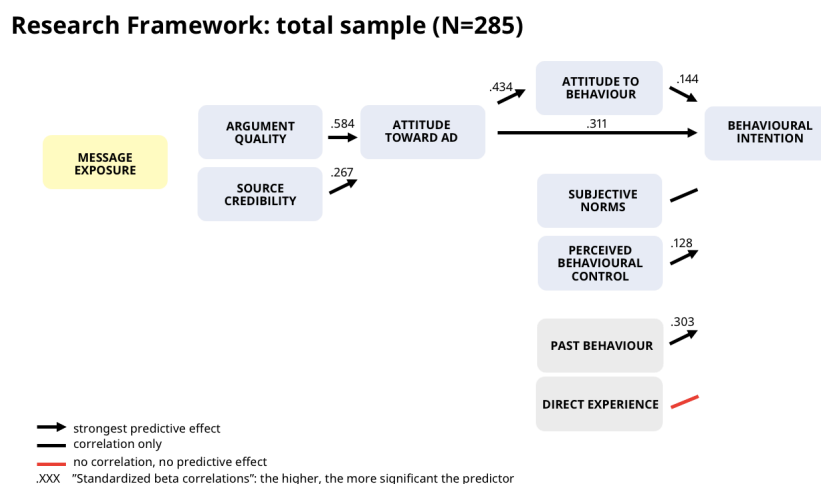
Mediating variable

Thus, there are significant positive correlations for supporting H1a: between AA and AB; and between AB and BI. In order to check the effect of moderation and if the relationship between independent and dependent variables is causal, Multiple regression was run (the necessary condition to test mediation is that all the variables should positively correlate pairwise: bivariate linear regression). There is a significant direct and indirect ($p<0.05$) positive (Beta-Coefficient) effect between the variables. The coefficient of determination (R must be between 0 and 1, the higher the better the predictor; if 0 then none of the variations can be explained by the predictions) shows how well the independent variables can predict the dependent variable (Pallant, 2016). 21.8% (AA, AB — BI) of the variability in intention can be accounted for by AA and AB, which is not a huge, but a meaningful predictor. To finish the mediation analysis, the Sobel tests were run *(Figure 143, 144)* (Preacher & Leonardelli, 2021). When AA increases by one unit, BI increases by 0.282 units, for AB BI increases by 0.180 units (unstandardized B). As some analytics claim the Sobel test is not the most reliable test, the mediation was as well checked with the Process-extension for SPSS. For the total sample, AB (b=.2563, se=.0316, p=.000<.05), BC (b=.1797, se=.0424, p=.0136<.05), AC (b=.2818, se=.0427, p=.000<.05), IE (=.0460, 95%CI=.0067,.0907), which supports that both direct and indirect effects (when AB is a mediator) work in this model *(Figures 145, 148)*.

Conducting the same mediation analysis, splitting into condition groups, there is an evidence of significant mediating effect of AB between AA and BI, as well as direct effect of AA on BI in the rational group. Though, there is no significance in the mediating effect of AB between AA and BI; only the significant positive direct effect of AA on BI. Checking the data with the Process-extension, for the rational-condition sample, AB (b=.2895, se=.0619, p=.000<.05), BC (b=.3692, se=.0996, p=.0003<.05), AC (b=.1709, se=.0782, p=.0307>.05), IE (=.1069, 95%CI=.0333,.2062), which supports that there is an indirect mediating effect (when AB is a mediator) in this model, but no significance of the direct effect of AA on BI *(Figure 146)*. For the emotional-condition sample, AB (b=.2640, se=.0453, p=.000<.05), BC (b=.0568, se=.1036, p=.5844>.05), AC (b=.3229, se=.0622, p=.000<.05), IE (=.0150, 95%CI=-.0409,.0731), which supports that there is a direct effect between AA and BI, but no indirect mediating effect via AB

in this model *(Figure 147)*. This means that **H1a is supported only for the total sample, or the rational condition group, but not for the emotional condition group, so for this group further hypotheses will be seen only via the direct effect (AA → BI). After partial support of the H1a, the model can be re-structured for one with the supported effects** *(Figures 148-150)*.

Though the mediating effect is supported (for total sample and rational group), it would be not correct to compare the direct and indirect effect obtained from the mediating analysis between the rational and emotional condition group models, as it is not a parallel mediation model.

Therefore, to check, which communication appeal resulted in a more significant change in behavioural intention, the T-test and frequency analysis are used. In the rational group the effect can only be mediated by AB, and in the emotional group there is an effect on the AB, but it is not further connected to the BI, though there is a direct effect of AA and BI. Because of this, the Beta-Coefficients cannot be compared in the two models. As in both models there is either a direct or indirect influence, and both groups were distributed almost equally, it is possible to run a T-test divided by condition groups: mean distribution resulted in a bit higher outcome in the rational group (where 1 = "strongly agree", 5 = "strongly disagree"), than in the emotional group (1.78 and 2.13 out of 5) *(Figures 151, 152)*. It is important to notice that there were no "highly unlikely" answers about intention to save water after the exposure, though the input before the exposure (past behaviour) was of 21% and 7% of respondents who answered "somewhat disagree" and "strongly disagree" respectively to the question of their past behaviour in terms of water saving *(Figures 153-155)*. Considering that, in the group exposed to the rational appeal, the average level of intention to save water in the future, was a bit higher than in the emotional group.

In order to check the last missing piece of data, for the H3a and H4a, the mediating effect of AA on BI was compared to the direct effect of PBC and PB for the rational condition group. AA→BI: IE (=.1069, 95%CI=.0333, .2062); AB→BI (b=.3692, se=.0996, *p*=.0003<.001); PBC→BI (b=.2209, se=.0551, *p*=.0001<0.05); PB→BI (b=.2383, se=.0408, *p*=.0000<0.05), meaning that past behaviour is the most influential predictor of behavioural intention, then follows attitude to behaviour,

perceived behavioural control, and then the indirect influence of attitude toward advertisement *(Figures 156, 157)*.

Results

H1a: Attitude toward advertisement has an indirect significant effect on behavioural intention through attitude to behaviour. **Supported for rational condition group and total.**

H1b: Attitude toward advertisement has a direct significant effect on behavioural intention through attitude to behaviour. **Supported for emotional condition group and total.**

H2a. Rational exposure has a stronger influence (direct / indirect) on behavioural intention, than emotional. **Supported. Attitude toward a rational appeal has a stronger impact on behavioural intention, which is only mediated, than to an emotional appeal, which is only direct.**

H2b. Emotional exposure has a stronger influence (direct / indirect) on behavioural intention, than rational. **Not supported. Attitude toward an emotional appeal does not have a stronger impact on behavioural intention, which is only direct, than to a rational appeal, which is only mediated.**

H3a: When exposed to the rational appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables (attitude to behaviour, subjective norms, perceived behavioural control). **Not supported. Attitude toward advertisement is an indirect influential predictor of behavioural intention, but its influence is less than of perceived behavioural control and attitude to behaviour in the rational condition group.**

H3b: When exposed to the emotional appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables (attitude to behaviour, subjective norms, perceived behavioural control). **Supported. Attitude toward advertisement is the only significant direct predictor of behavioural intention in the emotional condition group.**

H3c: Not depending on the appeal, attitude toward advertisement will have a greater positive effect (direct / indirect) on behavioural intention than TPB variables

(attitude to behaviour, subjective norms, perceived behavioural control). **Supported. Attitude toward advertisement is the most significant direct predictor of behavioural intention, followed by attitude to behaviour and perceived behavioural control, not depending on the appeal.**

H4a: When exposed to the rational appeal, attitude toward advertisement will have a greater positive effect on behavioural intention than additional variables (direct experience, past behaviour). **Not supported. Attitude toward advertisement is an indirect influential predictor of behavioural intention, but its influence is less than of past behaviour in the rational condition group.**

H4b: When exposed to the emotional appeal, attitude toward advertisement will have a greater positive effect on behavioural intention than additional variables (direct experience, past behaviour). **Supported. Attitude toward advertisement is the only significant direct predictor of behavioural intention in the emotional condition group.**

H4c: Not depending on the appeal, attitude toward advertisement will have a greater positive effect on behavioural intention than additional variables (direct experience, past behaviour). **Supported. Attitude toward advertisement is the most significant direct predictor of behavioural intention, not depending on the appeal, followed by past behaviour.**

Discussion

The issue of individual water conservation is becoming increasingly important, and businesses (such as IKEA) can make a huge contribution to a greener future by inspiring consumers to everyday actions by planning and implementing effective strategic communication. In order to build a strong strategy, communication practitioners need to understand what interventions are the most effective, and what psychological barriers and motivational drivers they should be based on. The purpose of this study was to answer two research questions. For this, a set of relevant research studies was reviewed, and the findings were tested in an empirical study with consumers. The research model and hypotheses were based on a combination of communication theory ELM and socio-psychological TPB model, as behaviour change is a long and very complex multifaceted process that requires a multidisciplinary approach, and the knowledge of these interdisciplinary influential factors can significantly change the outcome of the communication strategy.

Research questions discussion

RQ1: What communication interventions are most effective for changing individual intention to save water around the home?

The theoretical review showed that most effective communication interventions are based on socio-psychological drivers (addressing economic, situational, social or personal barriers). They can be included in the communication messages as a combination of personal, social and external environmental factors. Personal norms, emotions (especially, positive emotions and warm glow), values (i.e. egoistic, biospheric, altruistic, hedonic), experiences, attitudes, habits, cultural characteristics are meant to be the most significant among internal personal factors for changes in behaviour. Social norms (e.g., perceived behavioural control, identities, image) and external factors (e.g., the appearance of benefit, the ease and accessibility of carrying out the behaviour) can also play a very significant role if included in communication. Other very effective interventions are: goal-setting and prompts, clear

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comparative visualization of behaviour, competitive incentives, message tailoring (grouped, depending on many factors, among which is tailoring by the dichotomous factor of appeal: rationality and emotionality). This message tailoring appeal strategy was chosen to be central for the current study, due to its effectiveness, and at the same time a massive contradiction in the theory: which appeal is more significant, despite the existing deep and comprehensive academic research.

This contradiction was tested with the research hypotheses in the empirical part of the study. It was revealed that attitude to rational appeal has a stronger impact on behavioural intention, which is mediated by attitude to behaviour, than in an emotional appeal, which has a direct influence on behavioural intention. Although there is a more significant influence, the outcome does not differ excessively for the two exposure groups. So, it can be concluded that in the communication strategy, rational appeal plays a very significant role and must take place, while emotional appeal has a direct influence on intention, and also causes a strong, but less effect.

RQ2: *How significant is the influence of communication interventions, in comparison to the other motivating factors, for changing individual intention to save water around the home?*

Following the findings from the literature review, it was supposed that the influence of communication factors may be compared to the influence of the following socio-psychological factors: attitude to behaviour, subjective norms and perceived behavioural control; and additional factors: past behaviour and direct experience. However, the empirical findings did not reveal significance of all of these connections and effects. It was found that in the rational exposure group, the influence of communication (attitude to advertisement) was less than the influence of socio-psychological factors (TPB variables: perceived behavioural control and attitude to behaviour) and less than an additional factor (past behaviour). In the emotional exposure group, the influence of communication (attitude toward advertisement) was the only significant influential factor on behavioural intention, in comparison to socio-psychological factors and an additional factor (past behaviour). For the total sample, attitude toward advertisement was the strongest direct predictor to intention, followed by past behaviour, attitude to behaviour and perceived behavioural control. Direct experience, as another additional factor, did not play an important role in

relation with behavioural intention in the model for various possible reasons, which was an unexpected outcome, as according to the theory, it should have had a significant effect. However, from the previous research, direct interaction with a problem (e.g. lack of water in a region) must have a stronger influence on behavioural intentions, than indirect experiences, such as awareness or knowledge of existing problems. Since the majority of respondents were from regions in middle and northern Europe where water scarcity is not a strong problem, they may have answered the questions based on awareness and knowledge of the problem rather than direct experience. Therefore, it may be worth investigating the variable with other questions, so, further research on this issue is recommended.

Additional findings

The empirical study also revealed that the rationality and emotionality of communication appeals are subjective-perceptual factors, even if these constructs were built on the instructions of previous theoretical research.

Also, raising awareness and providing information about the problem and solutions to increase knowledge appeared to be very important to be included in communication, but not enough to directly influence behaviour change.

It is important to remember about the gap between attitudes and behaviour: for long-term effects, nudges are necessary as an intervention, and consumer intention change knowledge should be expanded on longitudinal permanent measurements results.

In the end of the survey, there was some additional space where respondents could leave their comments (they were not asked any particular question). There were ten qualitative answers *(Figure 158)*. It was an unexpected outcome, and the study did not imply the qualitative empirical experiment, though such answers are very important for enriching the research, so they are interpreted in a brief way, according to the research questions, to try to explain the findings following the theories studied or check for inconsistencies. Out of ten answers, only two can be assessed as positive: in #8, the survey itself made a person think and become more aware of the

water problem; in #9, a person started thinking of some non-standard individual actions to take, such as planting the landscape with drought-tolerant plants for water saving. One answer (#10) was neutral: a person mentioned saving water when the real problem comes, which means if direct experience gets stronger. Answer #2 was negative: no direct experience led to no desire to do anything about the problem. These answers are another evidence that the influence of direct experience on behavioural intention needs to be further re-examined. Answer #3 was neutral toward the behaviour, but not the communication or attempts of the corporations: a person behaves more pro-environmentally because of self-conscience, but does not really believe in individual contribution: this is the corporations that are creating the problem, so they need to drive the big change. Five other answers (#1, #4-7) claim that corporations and governments must be responsible for the water problems, and individual contribution is not going to help. Two of the answers (#1, #6) directly refer to corporate and governmental blame shifting to individuals, which makes any communication biased and vulnerable. The overall negativity is an indicator of mistrust in corporate communication, transparency and faith in change. This brings back to the literature review, mainly to the interventions based on social barriers, which have been declared as most significant change drivers or barriers, especially locus of control (perceived behavioural control) and perception of self-efficacy. Thus, the open-ended answers complement the results of the literature review and some results of the empirical study, specifically that perceived behavioural control is a very influential and significant change driver, and knowing how to use it, or how to more effectively implement it in communication, can result in higher behavioural intention change (according to the empirical study results, this is especially valid for the rational exposure, which showed a higher level of influential potential, in comparison to the emotional appeal). The findings also raised the question of transparency: this policy is supposed to address the issues of mistrust and misunderstanding of the corporate actions towards environment, equality, etc. As the questionnaire was compiled with reference to IKEA, and IKEA has a developed transparency policy assessible to everyone, then for some people this transparency policy seems to cause the opposite effect or doesn't work in the way it is supposed to work, or is not widespread enough; so communication about corporate transparency is a relevant problem to be included in the future studies, which might be one of the side-factors connected to shifting individual intentions and behaviour.

Conclusion and implications

Conclusion

The study was aimed at increasing knowledge about how to change intentions towards pro-environmental behaviour with communication. The purpose of the study was to identify what communication interventions are most effective for changing individual intention to save water around the home, and how significant these communication interventions are, in comparison to the other motivating factors. Based on theoretical review, the possible and most effective communication interventions were described, based on the intrinsic socio-psychological drivers and barriers. Also, using an experimental approach, an exploratory model was developed and the results of the literature review were tested in practice: the significance of correlations and effects between the most influential variables. The results helped to answer the research questions, and showed that message tailoring strategy, as one of the most influential intervention strategies, can increase intention to behave more sustainably in terms of individual water consumption. The findings about rationality and emotionality of appeals showed that although both appeals influence intention (directly or indirectly), rational appeals are able to impact behavioural intention change more effectively than emotional appeals. Perceived behavioural control and past behaviour (only in case of rational communication or without division into appeals) proved to be particularly influential factors on intention, in addition to communication. This should be considered in the future research, as well as included in the communication strategy. When exposed to emotional appeal, only the attitude variable had an effect on behavioural intention, suggesting that emotional advertising itself has a strong driving force within individual water consumption. However, deeper research should be done because the pre-test and survey analysis showed that the concept of rationality and emotionality is subjective and can be perceived differently. Perhaps, the rational message was more influential in the consumer response for the reason of that the emotional message used for the current research did not capture the emotional state of the audience, and the call for a 'future

without a war for resources' did not seem meaningful enough, compared to other potential emotional calls; even though both were composed according to the findings and instructions of the literature review. Thus, the next element for testing could be the analysis of other texts in the appeal strategy (e.g. using the impact on perceived behavioural control, which showed a strong correlation to intention), as well as the analysis of the communication mix (linking rational and emotional appeals together). Besides, direct experience showed no significant influence or correlation with intention, although this variable played an important role in previous related studies, and the results of qualitative responses to the survey also suggest that this variable is important, so it should be studied further.

Implications

In this way, the study contributes to the theoretical research. Firstly, the study covers an extensive list of literature reviews, which allows to assess the situation of the researched effectiveness of interventions, contradictions and gaps in the environmental context, interdisciplinary but with the focus on communication. Secondly, the results for most part confirm previous studies. For example, that the tailoring strategy increases persuasion and the likelihood of subsequent behaviour, and that the dichotomous approach (rationality and emotionality) is an important aspect of an adaptive communication strategy. It was supported that people don't always base their attitudes and intentions on rationality: emotional communication has caused a change in behavioural intention, so it's better to include emotional appeals in communication, as they may have a long-term impact (this should be studied further), and as they may teach behaviour indirectly, regardless of consumer preferences. Perhaps the fact that rational communication had more impact can also be linked to the literature review conclusion that consumers need to get some knowledge about the problem in order to be able to infer and understand the message, while the emotional message did not provide enough information to fully gasp the problem and its solutions, even though both appeals were accompanied by an explanatory text about the problem. Emotional appeals showed to be more effective in attracting attention, but they must be used in connection with rational arguments. Thus, the gap about effectiveness of appeals in communication may be related to the subjectivity of the appeals themselves: rational appeal influences better, but

only indirectly through attitude to behaviour; emotional appeal influences directly but worse, and may need to be supported by rational facts or instructions that clearly explain the need for behaviour. Also, the previous findings, that PBC is very significant for shaping pro-environmental behaviour, were supported for the water case. Besides, the qualitative answers revealed that perceived self-efficacy plays role in influencing behaviour, if linked to a specific problem, and it is another finding for future studies. Finally, the study extends the theoretical basis as the topic of individual water consumption has not yet been explored in the combined ELM+TPB model, where attitude to behaviour serves as a mediator from communication impact to behavioural intention.

Moreover, the study contributes in a practical way in terms of managerial implications that companies like IKEA can use as a helpful strategic communication tool for changing the intention of the many people to change the world to the better by small actions of individuals. These findings might improve the effectivity of communication outcome by proposing supported findings, as well as some insight information, in terms of water consumption.

Limitations

Despite the in-depth and detailed study of the topic, quite a lot remains as limitations. First, the study was to examine just one type of communication intervention: the text banner. To choose the most effective option for implementation, more text formulations are to be tested, or use specific solutions or products. The fact that respondents were not just exposed to the message but also participated consciously in the survey is also a limitation: one cannot conclude that the level of text message development is the same, and that a person would even pay attention to such a message if it were placed, e.g., as a banner at IKEA, or website. The other design elements and suitable places to post the ad should be tested. Besides, there is a response bias risk: people are limited in their ability to predict behavior or state themselves their attitudes, thoughts, feelings (Pallant, 2016; Manca & Fornara, 2019). This may cause discrepancy between desire to save water and actual behaviour. The study is limited by the factor of employing only the English-speaking target audience of 18+. Due to the time limit, actual behaviour cannot be studied, only the intention to behave. The study was limited by the use of two models, and did not include a test

of all the other (not previously tested with ELM or TPB) possible significant antecedents of consumer intention that were considered in the literature review.

Suggestions

The findings in this study open new opportunities for future research, for both academics and practitioners. It would be interesting to explore the combination of the appeals in communication strategy (hybrid strategy), or the effectivity of appeal sequence. Furthermore, the relation between the model variables and the behaviour itself, with a change over a time continuum, should be studied. Experimenting with a more specific target audience could play a role in the effectivity of the studied strategy. In the water pro-environmental behaviour topic, more significant antecedents should be explored, e.g. including the most influential socio-psychological factors in communication, studied in the intervention chapters. Future research should take a look at bigger aspects, such as trust: how to create an effective communication strategy when a brand is not trusted (lack of visibility or efficiency of transparency), or if consumers mistrust environmental communication in general (perceiving it biased, rooted in greenwashing effects). Direct experience should be studied deeper, as the empirical findings contradicted the previous studies and themselves: no correlation to intention in the survey, at the same time majority of long answers showed direct experience was an important factor. Also, literature review showed that deeper research into emotions obtained from communication can serve as a better predictor to the behavioural change, which would be interesting to explore. On a more general level, it would be interesting to study why discussion of water problems is not popular enough, if water is still wasted so unwisely by individuals (Nield, 2019), and learn how to reach this widespread effect, such as other most popular environmental issues (e.g. plastic, meat consumption, recycling), before it is too late for a change.

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Appendix 1a: Pre-test#1

Variable	Short name	Item	Scale
Effective communication for changing consumer behavioural intentions: Reducing household water consumption Dear respondent, I am a final year master's student of Strategic Communication, Lund University (LU). This is a validity pre-test to the main survey on message appeal study for changing behavioural intentions. This pre-test will consist of 4 questions, and will take you no more than 4 minutes. Please be assured that all collected information will be kept confidential and will be used for this academic research only. You can cancel your participation at any time. If you have any inquiries regarding this survey, please leave your question and the contact information at the end of the survey. I really appreciate your participation, Daria Granina			—
I am aware that my participation is voluntary and anonymous, that I can cancel my participation at any time. I am older than 18 years old.			Yes / No
PAGE BREAK [next page: message appeals]			
Please read the following advertisement text:			
It may not be noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference. **Just think of one little action: By showering 5 min instead of 10 min every day, you would save around 22,000 liters per year.** Let's start today. Together. Every drop matters! IKEA			
Please read the following advertisement text:			
It may not be noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference. **Just think of one little action: By showering 5 min instead of 10 min every day, you are raising a chance for your children to avoid the war for water resources in about 10 years.** Let's start today. Together. Every drop matters! IKEA			
Manipulation check	MC	Please rate to what extent the appeal in the advertisement (bolded text) is rational or emotional to you: MC: The appeal is … rational [1-5] emotional	Bipolar scale

Position	—	Please state your current position: Lund University professor IKEA specialist / manager Student Other	Checkbox
Communication expertise	—	My work / studies is connected to Communication	Yes / No
If you have any questions, you can ask them and leave your contact information here: _____			
Please, click "submit" Your participation in this research is highly appreciated. Thank you for your kind assistance in completing this survey.			

Appendix 1b: Pre-test#1 results

Figure 9. Pre-test#1 results

Frequencies

Statistics

		Message is rational	Message is emotional
N	Valid	5	5
	Missing	0	0
Mean		2.20	4.00
Median		2.00	4.00
Std. Deviation		1.095	1.225
Minimum		1	2
Maximum		4	5

Frequency Table

Message is rational

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very rational	1	20.0	20.0	20.0
	somewhat rational	3	60.0	60.0	80.0
	somewhat emotional	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

Message is emotional

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	somewhat rational	1	20.0	20.0	20.0
	somewhat emotional	2	40.0	40.0	60.0
	very emotional	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

Figure 10. Pre-test#1 results

Histogram
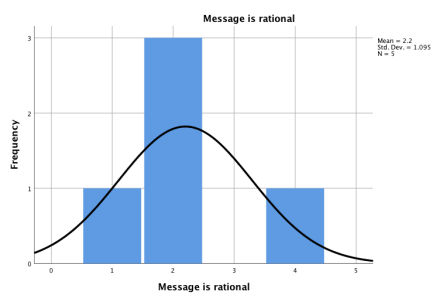
Figure 11. Pre-test#1 results
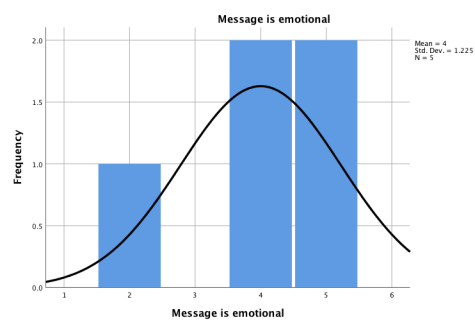
Appendix 2a: Pre-test#2

Variable	Short name	Item	Scale
Effective communication for changing consumer behavioural intentions: Reducing household water consumption Dear respondent, I am a final year master's student of Strategic Communication, Lund University. This is a test on message appeal study for changing behavioural intentions. This test will take you 3-5 minutes. Please be assured that all collected information will be kept confidential and will be used for this academic research only. You can cancel your participation at any time. If you have any inquiries regarding this survey, please leave your question and the contact information at the end of the survey. I really appreciate your participation, Daria Granina			—
I am aware that my participation is voluntary and anonymous, that I can cancel my participation at any time. I am older than 18 years old.			Yes / No
PAGE BREAK [next page: message appeals]			
In this study, two communication appeals are being studied as examples: rationality and emotionality. RATIONAL: communicating by using facts, statistically presented information, straightforward and convincing direct explanation of benefits, characteristics of objectivity, functionality and utilitarianism. EMOTIONAL: communicating through an appeal to emotions or values, sensuality, associations, use of threats, humor, excitement, etc., indirectly pushing for a change in behaviour or attitude.			
Please read the following advertisement text:			
It may be not noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference. **Just think: By showering 5 min instead of 10 min every day, you would save around 22,000 liters per year.** Let's start today. Together. Every drop matters!　IKEA			
Please read the following advertisement text:			

It may be not noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference.

Just think: By showering 5 min instead of 10 min every day, you are raising a chance for your children to avoid the war for water resources.

Let's start today. Together. Every drop matters!   IKEA

Manipulation check	MC	Please rate to what extent the appeal in the advertisement (bolded text) is rational or emotional to you: MC: The appeal is … rational [1-5] emotional	Bipolar scale
Position	—	Please state your current position: Lund University professor IKEA specialist / manager Student Other	Checkbox
Communication expertise	—	My work / studies is connected to Communication	Yes / No
If you have any questions or want to comment, please write your thoughts here: _____			
Please, click "submit" Your participation in this research is highly appreciated. Thank you for your kind assistance in completing this survey.			

Appendix 2b: Pre-test#2 results

Figure 12. Pre-test#2 results

Statistics

		Message is rational	Message is emotional
N	Valid	18	18
	Missing	0	0
Mean		1.72	4.72
Median		1.50	5.00
Std. Deviation		.895	.669
Minimum		1	3
Maximum		4	5

Frequency Table

Message is rational

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	50.0	50.0	50.0
	2	6	33.3	33.3	83.3
	3	2	11.1	11.1	94.4
	4	1	5.6	5.6	100.0
	Total	18	100.0	100.0	

Message is emotional

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	11.1	11.1	11.1
	4	1	5.6	5.6	16.7
	5	15	83.3	83.3	100.0
	Total	18	100.0	100.0	

Figure 13. Pre-test#2 results
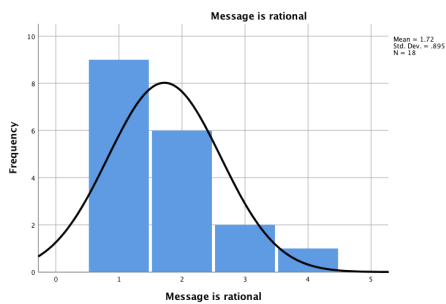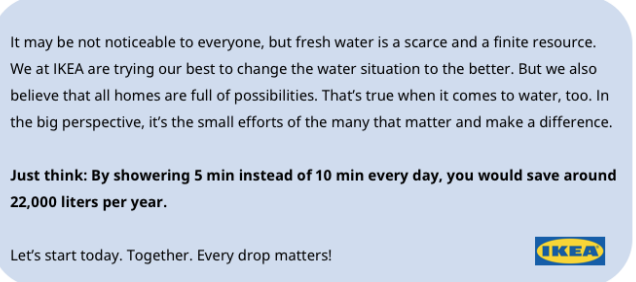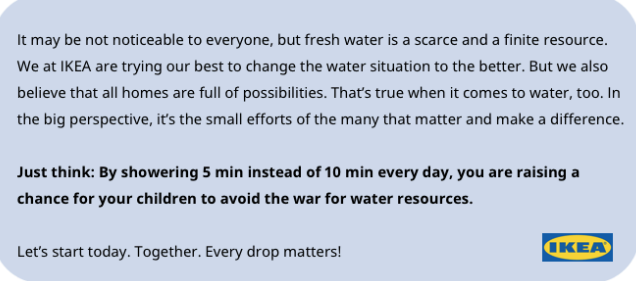
Figure 14. Pre-test#2 results

90
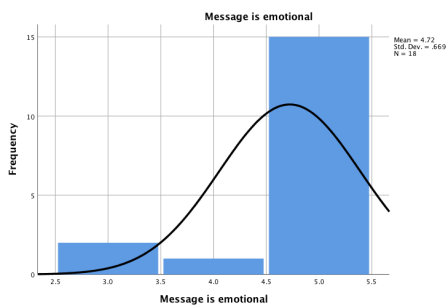
Appendix 3a: Survey

Variable	Short name	Item	Scale
Research: Studying behavioural intention change Dear respondent, This survey is a part of my master thesis in Strategic Communication at Lund University. The aim is to understand how to shift consumer behavioural intentions with communications. This survey will take you **no more than 5-10 minutes**. **Please, read each statement carefully, answer individually and in accordance with your perceptions.** All collected information will be kept confidential and will be used for this academic research only. You can cancel your participation at any time. I appreciate your participation, Daria Granina			—
I am aware that my participation is voluntary and anonymous, that I can cancel my participation at any time. I am older than 18 years old.			Yes / No
PAGE BREAK [next page: general questions]			
Direct experience: Water scarcity risk perception (Diakakis et al., 2021)	DE	How much do you agree with the following statements? DE1: Water scarcity is an issue that is affecting or is going to affect me personally. DE2: The issue of water scarcity is an issue of high importance to me personally. DE3: I am concerned about natural hazards or environmental risks derived from water scarcity. DE4: Water scarcity frightens me.	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
Past behaviour (Ajzen, 2006)	PB	How much do you agree with the following statements? PB: In the past three months, I have been taking everyday action to save water around the home (e.g. in the kitchen or bathroom).	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree

Subjective norms (Sheoran & Kumar, 2020)	SN	How much do you agree with the following statements? I don't want to take everyday action to save water around the home because … SN1: … there is no positive improvement in my perceived social image after my action. SN2: … my family/friends don't save water, and it discourages me to do so. SN3: …I don't have sufficient awareness about the problem and solutions due to lack of advertisements on TV and social media. SN4: … there is not any law enforcement by the government to do so.	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
Perceived behavioural control (Masud et al., 2016)	PBC	How much do you agree with the following statements? PBC1: If everyone takes everyday water saving actions, we could reduce the impact of fresh water problems. PBC2: I have the ability to reduce the impact of fresh water problems by my everyday water saving actions. PBC3: I'm confident that I could contribute to reducing the impact of fresh water problems through my everyday water saving actions.	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
PAGE BREAK [next page: advertisement exposure]			
Please, read the advertisement carefully, **especially the appeal (bold text)**. Later, you will be asked questions about it. You will not come back to the text of the advertisement.			
Message exposure: Rational	MER	It may be not noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference. **Just think: By showering 5 min instead of 10 min every day, you would save around 22,000 liters per year.** Let's start today. Together. Every drop matters! IKEA	
Message exposure: Emotional	MEE	It may be not noticeable to everyone, but fresh water is a scarce and a finite resource. We at IKEA are trying our best to change the water situation to the better. But we also believe that all homes are full of possibilities. That's true when it comes to water, too. In the big perspective, it's the small efforts of the many that matter and make a difference. **Just think: By showering 5 min instead of 10 min every day, you are raising a chance for your children to avoid the war for water resources.** Let's start today. Together. Every drop matters! IKEA	
PAGE BREAK [next page: advertisement assessment]			
Manipulation check	MC	To me, the appeal in the advertisement (bold text) was: MC: rational [1-5] emotional	Bipolar scale

Attitude toward Ad (MacKenzie & Lutz, 1989)	AA	To me, the text of the advertisement (especially, the bold appeal) I just read was: AA1: good [1-5] bad AA2: pleasant [1-5] unpleasant AA3: favourable [1-5] unfavourable AA4: convincing [1-5] unconvincing AA5: believable [1-5] unbelievable	Bipolar scale
Argument quality (Bhattacherjee & Sanford, 2006)	AQ	The information provided in the advertisement was: AQ1: Informative AQ2: Helpful AQ3: Valuable AQ4: Persuasive	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
Sender credibility (Bhattacherjee & Sanford, 2006)	SC	The sender of the advertisement (IKEA) was: SC1: Trustworthy SC2: Credible SC3: Experienced SC4: Expert	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
Attitude to behaviour (Perren & Yang, 2015)	AB	With what you read in the advertisement, taking everyday action to save water around the home is: AB1: extremely valuable [1-5] extremely worthless AB2: extremely pleasant [1-5] extremely unpleasant AB3: extremely beneficial [1-5] extremely harmful AB4: extremely good [1-5] extremely bad	Bipolar scale
Behavioural intention (Meng & Choi, 2019)	BI	With what you read in the advertisement, how likely are the following statements? BI1: I tend to engage in everyday actions to save water around the home. BI2: I am willing to engage in everyday actions to save water around the home. BI3: I am planning to engage in everyday actions to save water around the home.	Likert scale 1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree
PAGE BREAK [next page: background information]			
Background factors	BF	What is your age? BFA1: Under 18 BFA1: 18 – 24 BFA1: 35 – 44 BFA1: 45 – 54 BFA1: 55 – 64 BFA1: 65 – 74 BFA1: 85 or older What is your gender?	—

		BFG1: Male BFG2: Female BFG3: Non-conforming BFG4: Prefer not to say BFC: Please, specify the country and area you live in: _____ What is your occupation? BFO1: Employed full time BFO2: Employed part time BFO3: Unemployed looking for work BFO4: Unemployed not looking for work BFO5: Retired BFO6: Student BFO7: Disabled BFO8: Prefer not to answer What is the highest education you have completed? BFE1: Less than high school BFE2: High school graduate BFE3: College BFE4: 2-year degree BFE5: 4-year degree BFE6: Professional degree BFE7: Doctorate BFE8: Prefer not to answer Please, state your annual household income before taxes: BFI1: Less than EUR 10.000 BFI2: EUR 10.000-19.999 BFI3: EUR 20.000-29.999 BFI4: EUR 30.000-39.999 BFI5: EUR 40.000-49.999 BFI6: EUR 50.000-59.999 BFI7: EUR 60.000-69.999 BFI8: EUR 70.000-79.999 BFI9: EUR 80.000-89.999 BFI10: EUR 90.000-99.999 BFI11: EUR 100.000-149.999 BFI12: More than EUR 150.000 BFI13: Prefer not to answer	
If you have any questions or comments, you can write them here (leave your contact if you want to get in touch): _____			
Please, click "submit" Your participation in this research is highly appreciated. Thank you for your kind assistance in completing this survey.			

Appendix 3b: Survey results

Figure 18. Descriptive statistics

Item	Frequency	Percentage
Gender		
Female	170	36.8%
Male	105	59.6%
Non-binary	6	2.1%
No answer	4	1.4%
Age		
18-24	100	35.1%
25-34	118	41.4%
35-44	46	16.1%
45-54	11	3.9%
55-64	10	3.5%
Geography		
Asia	33	11.6%
Australia	6	2.1%
Middle Europe	109	38.2%
North Europe	65	22.8%
South Europe	12	4.2%
UK	54	18.9%
US	6	2.1%
Education		
High school	17	6.0%
College	11	3.9%
2-year degree	13	4.6%
4-year degree	149	52.3%
Professional degree	89	31.2%
Doctorate	6	2.1%
Income, household		
Less than €10,000	59	20.7%
€10,000 - €29,999	75	26.3%
€30,000 - €59,000	67	23.6%
€60,000 - €89,000	33	11.7%
More than €90,000	10	3.6%
No answer	41	14.4%
Direct experience		
Very high	72	25.3%
High	124	43.5%
Intermediate	57	20.0%
Low	27	9.5%
Very low	5	1.8%
Past behaviour		
Strongly agree	53	18.6%
Agree	98	34.4%
Intermediate	53	18.6%
Disagree	61	21.4%
Strongly disagree	20	7.0%

Figure 19. Descriptive statistics

	Skewness	Kurtosis	Mean	5% Trimmed mean	Std	Scale
	all, rat, emot	all, rat, emot	all, rat, emot	all, rat, emot	all, rat, emot	all
Direct Experience	0.680, 0.540, 0.834	-0.004, -0.371, 0.535	2.19, 2.25, 2.13	2.14, 2.20, 2.08	0.978, 1.036, 0.918	1-5
Past behaviour	0.325, 0.469, 0.189	-0.947, -0.832, -1.024	2.64, 2.61, 2.67	2.60, 2.57, 2.63	1.207	1-5
Perceived control	0.612, 0.812, 0.462	-0.163, 0.459, -0.546	2.25, 2.11, 2.38	2.20, 2.04, 2.36	0.969, 0.961, 0.961	1-5
Subjective norms	-0.328, -0.170, -0.349	-0.739, -0.919, -0.854	3.63, 3.70, 3.56	3.67, 3.72, 3.61	1.069	1-5
Argument quality	0.873, 0.581, 0.371	0.686, 1.573, -0.423	2.42, 2.08, 2.76	2.36, 2.06, 2.73	0.956	1-5
Source credibility	0.497, 0.294, 0.197	-0.425, -0.517, -0.956	2.50, 2.18, 2.82	2.45, 2.14, 2.80	1.118	1-5
Attitude Ads	0.661, 0.879, 0.077	-0.432, 1.400, -1.073	2.39, 1.88, 2.88	2.33, 1.82, 2.87	1.100	1-5
Attitude behaviour	0.047, 0.002, -0.083	-0.257, 0.182, -0.558	2.11, 2.01, 2.21	2.11, 2.01, 2.22	0.649	1-4(5)
Intention	0.732, 0.720, 0.553	0.346, 1.020, -0.261	1.96, 1.78, 2.13	1.90, 1.73, 2.09	0.804	1-4(5)
N = 285						
N rat = 141						
N emot = 144						

Figure 20. Descriptive statistics: Age

age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18–24	100	35.1	35.1	35.1
	25–34	118	41.4	41.4	76.5
	35–44	46	16.1	16.1	92.6
	45–54	11	3.9	3.9	96.5
	55–64	10	3.5	3.5	100.0
	Total	285	100.0	100.0	

Figure 21. Descriptive statistics: Age

Histogram

Mean = 1.99
Std. Dev. = .993
N = 285
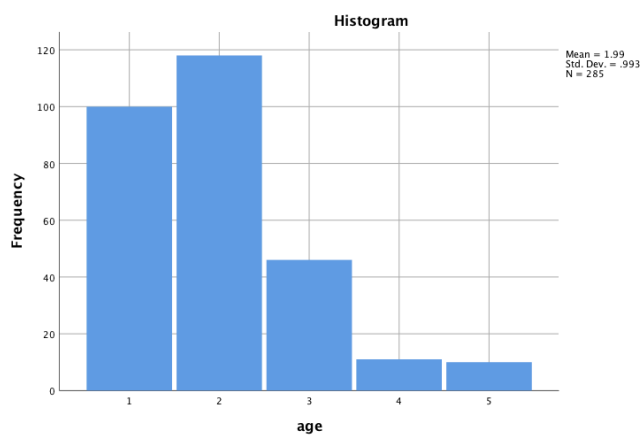
Figure 22. Descriptive statistics: Gender

gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	105	36.8	36.8	36.8
	female	170	59.6	59.6	96.5
	non–binary / third gender	6	2.1	2.1	98.6
	prefer not to answer	4	1.4	1.4	100.0
	Total	285	100.0	100.0	

Figure 23. Descriptive statistics: Gender
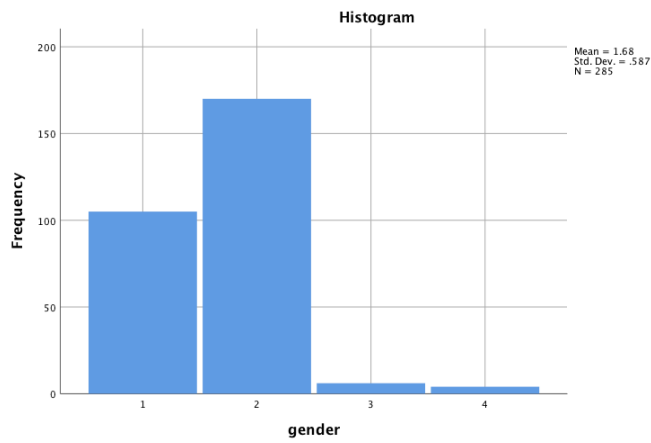
Figure 24. Descriptive statistics: Area

area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	asia	33	11.6	11.6	11.6
	australia	6	2.1	2.1	13.7
	middle europe	109	38.2	38.2	51.9
	north europe	65	22.8	22.8	74.7
	south europe	12	4.2	4.2	78.9
	uk	54	18.9	18.9	97.9
	us	6	2.1	2.1	100.0
	Total	285	100.0	100.0	

Figure 25. Descriptive statistics: Area
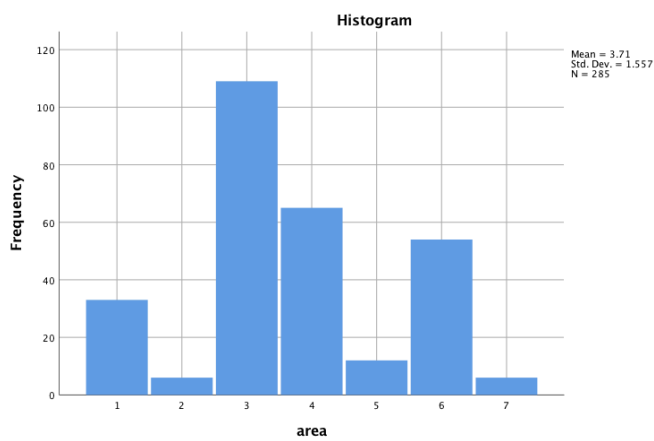
Figure 26. Descriptive statistics: Occupation

occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	employed full time	119	41.8	41.8	41.8
	employed part time	58	20.4	20.4	62.1
	unemployed looking for work	42	14.7	14.7	76.8
	unemployed not looking for work	1	.4	.4	77.2
	student	65	22.8	22.8	100.0
	Total	285	100.0	100.0	

Figure 27. Descriptive statistics: Occupation
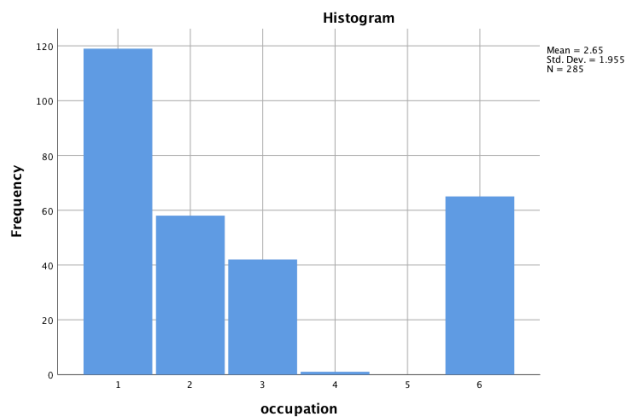
Figure 28. Descriptive statistics: Education

education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high school graduate	17	6.0	6.0	6.0
	college	11	3.9	3.9	9.8
	2 year degree	13	4.6	4.6	14.4
	4 year degree	149	52.3	52.3	66.7
	professional degree	89	31.2	31.2	97.9
	doctorate	6	2.1	2.1	100.0
	Total	285	100.0	100.0	

Figure 29. Descriptive statistics: Education

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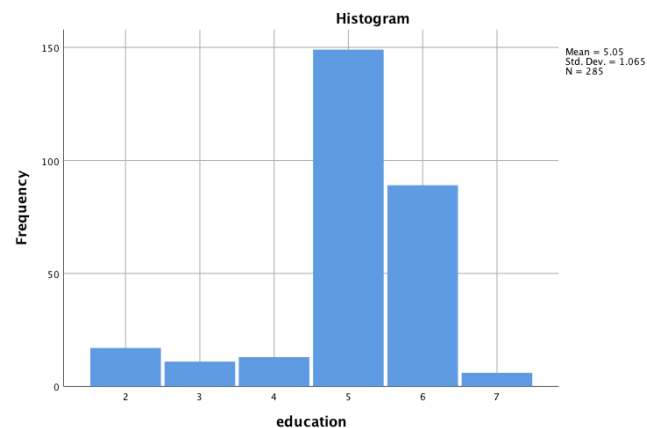
Figure 30. Descriptive statistics: Income

income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than €10,000	59	20.7	20.7	20.7
	€10,000–€19,000	56	19.6	19.6	40.4
	€20,000–€29,000	19	6.7	6.7	47.0
	€30,000–€39,000	25	8.8	8.8	55.8
	€40,000–€49,000	21	7.4	7.4	63.2
	€50,000–€59,000	21	7.4	7.4	70.5
	€60,000–€69,000	15	5.3	5.3	75.8
	€70,000–€79,000	11	3.9	3.9	79.6
	€80,000–€89,000	7	2.5	2.5	82.1
	€90,000–€99,000	3	1.1	1.1	83.2
	€100,000–€149,000	6	2.1	2.1	85.3
	more than €150,000	1	.4	.4	85.6
	prefer not to answer	41	14.4	14.4	100.0
	Total	285	100.0	100.0	

Figure 31. Descriptive statistics: Income
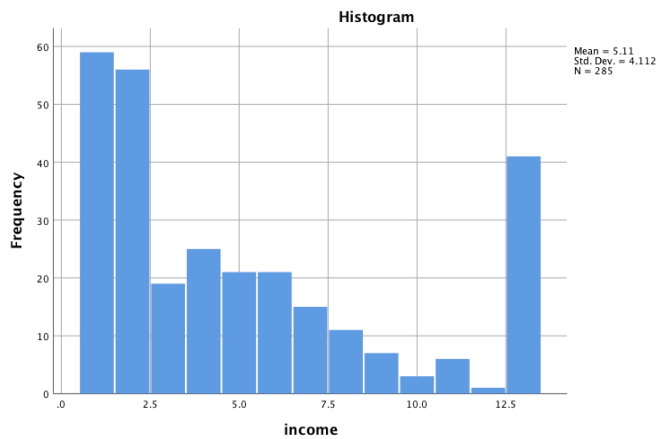
Figure 32. Descriptive statistics: Direct Experience

scarcity_index_rnd	Mean		2.19	.058
	95% Confidence Interval for Mean	Lower Bound	2.08	
		Upper Bound	2.30	
	5% Trimmed Mean		2.14	
	Median		2.00	
	Variance		.957	
	Std. Deviation		.978	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		2	
	Skewness		.680	.144
	Kurtosis		-.004	.288

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Figure 33. Descriptive statistics: Direct Experience
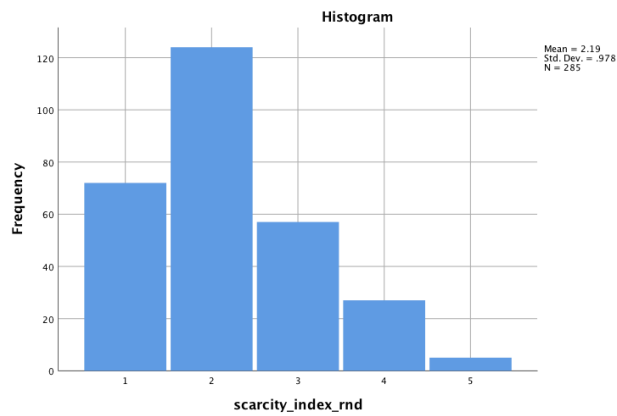
Figure 34. Descriptive statistics: Past Behaviour

pastbehavior	Mean		2.64	.071
	95% Confidence Interval for Mean	Lower Bound	2.50	
		Upper Bound	2.78	
	5% Trimmed Mean		2.60	
	Median		2.00	
	Variance		1.457	
	Std. Deviation		1.207	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		2	
	Skewness		.325	.144
	Kurtosis		−.947	.288

Figure 35. Descriptive statistics: Past Behaviour
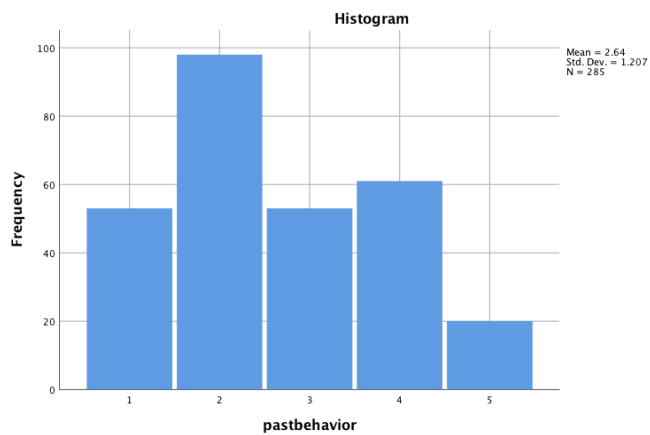
Figure 36. Descriptive statistics: Past Behaviour (Rational / Emotional)

pastbehavior	rational	Mean		2.61	.102
		95% Confidence Interval for Mean	Lower Bound	2.41	
			Upper Bound	2.81	
		5% Trimmed Mean		2.57	
		Median		2.00	
		Variance		1.454	
		Std. Deviation		1.206	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		.469	.204
		Kurtosis		-.832	.406
	emotional	Mean		2.67	.101
		95% Confidence Interval for Mean	Lower Bound	2.47	
			Upper Bound	2.87	
		5% Trimmed Mean		2.63	
		Median		3.00	
		Variance		1.469	
		Std. Deviation		1.212	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		.189	.202
		Kurtosis		-1.024	.401

Figure 37. Descriptive statistics: Perceived Behavioural Control

perceived_cntrl_index_rnd	Mean		2.25	.057
	95% Confidence Interval for Mean	Lower Bound	2.13	
		Upper Bound	2.36	
	5% Trimmed Mean		2.20	
	Median		2.00	
	Variance		.939	
	Std. Deviation		.969	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1	
	Skewness		.612	.144
	Kurtosis		-.163	.288

Figure 38. Descriptive statistics: Perceived Behavioural Control

Mean = 2.25
Std. Dev. = .969
N = 285
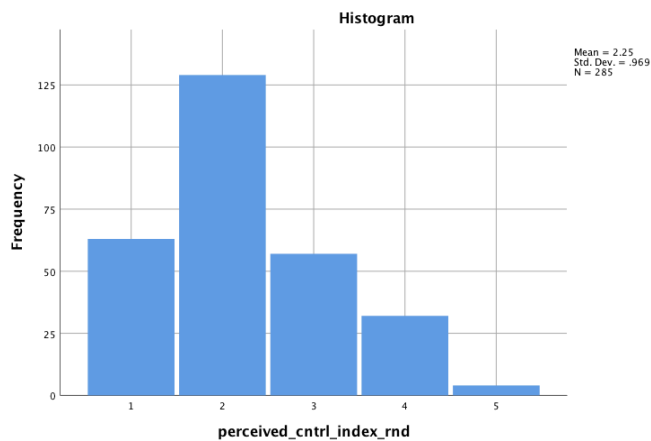
Figure 39. Descriptive statistics: Perceived Behavioural Control (Rational / Emotional)

perceived_cntrl_index_rnd	rational	Mean		2.11	.081
		95% Confidence Interval for Mean	Lower Bound	1.95	
			Upper Bound	2.27	
		5% Trimmed Mean		2.04	
		Median		2.00	
		Variance		.924	
		Std. Deviation		.961	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		.812	.204
		Kurtosis		.459	.406
	emotional	Mean		2.38	.080
		95% Confidence Interval for Mean	Lower Bound	2.22	
			Upper Bound	2.54	
		5% Trimmed Mean		2.36	
		Median		2.00	
		Variance		.923	
		Std. Deviation		.961	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		1	
		Skewness		.462	.202
		Kurtosis		-.546	.401

Figure 40. Descriptive statistics: Subjective Norms

sbj_norms_index_rnd	Mean		3.63	.063
	95% Confidence Interval for Mean	Lower Bound	3.50	
		Upper Bound	3.75	
	5% Trimmed Mean		3.67	
	Median		4.00	
	Variance		1.143	
	Std. Deviation		1.069	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		2	
	Skewness		-.328	.144
	Kurtosis		-.739	.288

Figure 41. Descriptive statistics: Subjective Norms

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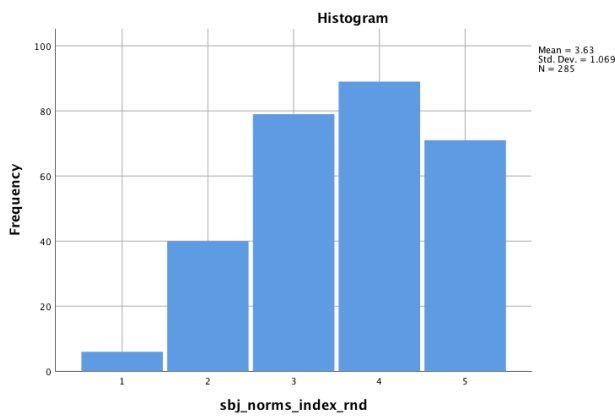
Figure 42. Descriptive statistics: Subjective Norms (Rational / Emotional)

sbj_norms_index_rnd	rational	Mean		3.70	.080
		95% Confidence Interval for Mean	Lower Bound	3.54	
			Upper Bound	3.86	
		5% Trimmed Mean		3.72	
		Median		4.00	
		Variance		.911	
		Std. Deviation		.954	
		Minimum		2	
		Maximum		5	
		Range		3	
		Interquartile Range		1	
		Skewness		-.170	.204
		Kurtosis		-.919	.406
	emotional	Mean		3.56	.097
		95% Confidence Interval for Mean	Lower Bound	3.36	
			Upper Bound	3.75	
		5% Trimmed Mean		3.61	
		Median		4.00	
		Variance		1.368	
		Std. Deviation		1.169	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		-.349	.202
		Kurtosis		-.854	.401

Figure 43. Descriptive statistics: Argument Quality

arg_qu_index_rnd	Mean		2.42	.057
	95% Confidence Interval for Mean	Lower Bound	2.31	
		Upper Bound	2.53	
	5% Trimmed Mean		2.36	
	Median		2.00	
	Variance		.914	
	Std. Deviation		.956	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1	
	Skewness		.873	.144
	Kurtosis		.686	.288

Figure 44. Descriptive statistics: Argument Quality
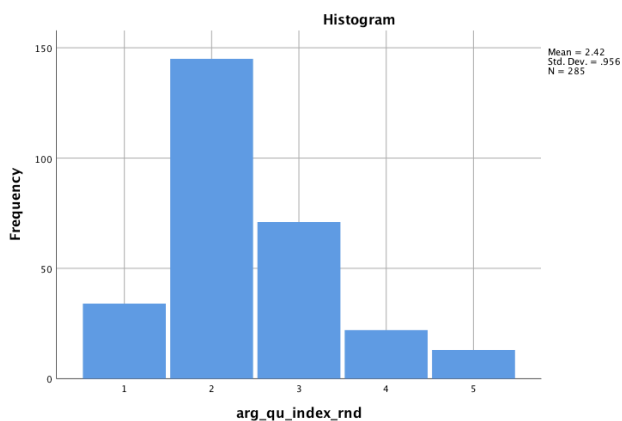
Figure 45. Descriptive statistics: Argument Quality (Rational / Emotional)

arg_qu_index_rnd	rational	Mean		2.08	.050
		95% Confidence Interval for Mean	Lower Bound	1.98	
			Upper Bound	2.18	
		5% Trimmed Mean		2.06	
		Median		2.00	
		Variance		.358	
		Std. Deviation		.598	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		0	
		Skewness		.581	.204
		Kurtosis		1.573	.406
	emotional	Mean		2.76	.093
		95% Confidence Interval for Mean	Lower Bound	2.57	
			Upper Bound	2.94	
		5% Trimmed Mean		2.73	
		Median		3.00	
		Variance		1.234	
		Std. Deviation		1.111	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		1	
		Skewness		.371	.202
		Kurtosis		-.423	.401

Figure 46. Descriptive statistics: Source Credibility

sender_cred_index_rnd	Mean		2.50	.066
	95% Confidence Interval for Mean	Lower Bound	2.37	
		Upper Bound	2.63	
	5% Trimmed Mean		2.45	
	Median		2.00	
	Variance		1.251	
	Std. Deviation		1.118	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1	
	Skewness		.497	.144
	Kurtosis		-.425	.288

Figure 47. Descriptive statistics: Source Credibility

Histogram

Mean = 2.5
Std. Dev. = 1.118
N = 285

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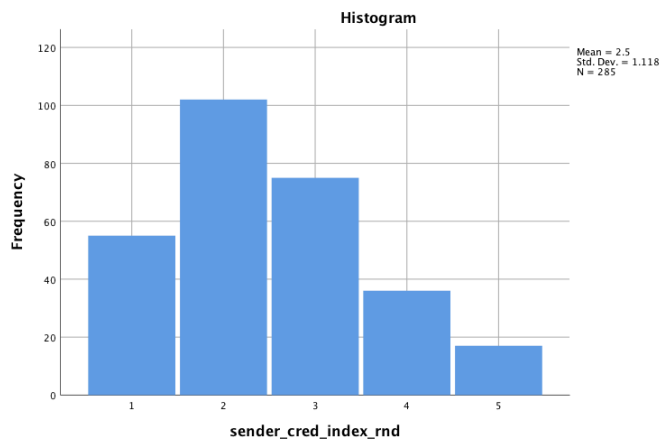
Figure 48. Descriptive statistics: Source Credibility (Rational / Emotional)

sender_cred_index_rnd	rational	Mean		2.18	.071
		95% Confidence Interval for Mean	Lower Bound	2.04	
			Upper Bound	2.32	
		5% Trimmed Mean		2.14	
		Median		2.00	
		Variance		.718	
		Std. Deviation		.848	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		1	
		Skewness		.294	.204
		Kurtosis		-.517	.406
	emotional	Mean		2.82	.105
		95% Confidence Interval for Mean	Lower Bound	2.61	
			Upper Bound	3.03	
		5% Trimmed Mean		2.80	
		Median		3.00	
		Variance		1.576	
		Std. Deviation		1.255	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		.197	.202
		Kurtosis		-.956	.401

Figure 49. Descriptive statistics: Attitude toward Advertisement

ad_att_index_rnd	Mean		2.39	.065
	95% Confidence Interval for Mean	Lower Bound	2.26	
		Upper Bound	2.51	
	5% Trimmed Mean		2.33	
	Median		2.00	
	Variance		1.210	
	Std. Deviation		1.100	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		1	
	Skewness		.661	.144
	Kurtosis		-.432	.288

Figure 50. Descriptive statistics: Attitude toward Advertisement
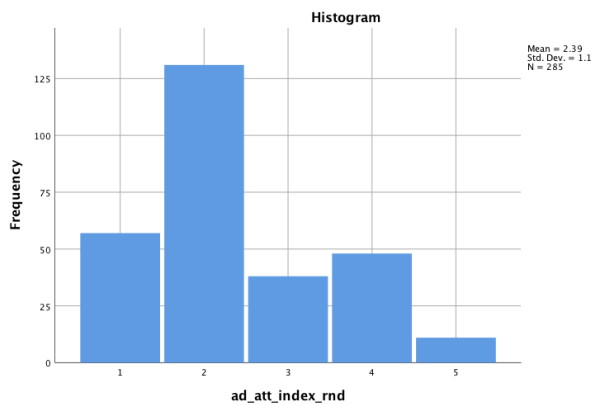
Figure 51. Descriptive statistics: Attitude toward Advertisement (Rational / Emotional)

ad_att_index_rnd	rational	Mean		1.88	.061
		95% Confidence Interval for Mean	Lower Bound	1.76	
			Upper Bound	2.00	
		5% Trimmed Mean		1.82	
		Median		2.00	
		Variance		.521	
		Std. Deviation		.722	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		1	
		Skewness		.879	.204
		Kurtosis		1.400	.406
	emotional	Mean		2.88	.098
		95% Confidence Interval for Mean	Lower Bound	2.69	
			Upper Bound	3.08	
		5% Trimmed Mean		2.87	
		Median		3.00	
		Variance		1.392	
		Std. Deviation		1.180	
		Minimum		1	
		Maximum		5	
		Range		4	
		Interquartile Range		2	
		Skewness		.077	.202
		Kurtosis		−1.073	.401

Figure 52. Descriptive statistics: Attitude to Behaviour

att_beh_index_rnd	Mean		2.11	.038
	95% Confidence Interval for Mean	Lower Bound	2.03	
		Upper Bound	2.18	
	5% Trimmed Mean		2.11	
	Median		2.00	
	Variance		.421	
	Std. Deviation		.649	
	Minimum		1	
	Maximum		4	
	Range		3	
	Interquartile Range		1	
	Skewness		.047	.144
	Kurtosis		−.257	.288

Figure 53. Descriptive statistics: Attitude to Behaviour

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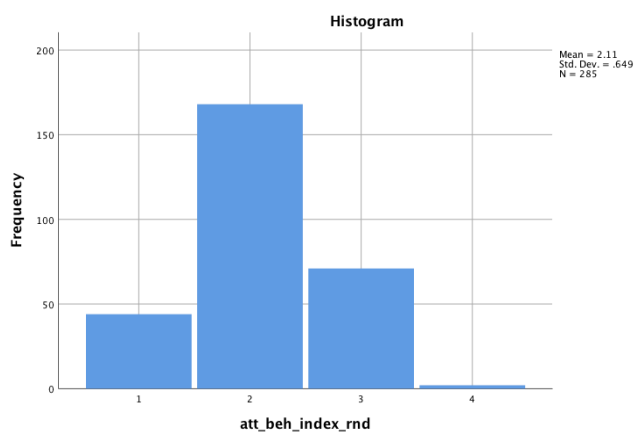
Figure 54. Descriptive statistics: Attitude to Behaviour (Rational / Emotional)

att_beh_index_rnd	rational	Mean		2.01	.048
		95% Confidence Interval for Mean	Lower Bound	1.91	
			Upper Bound	2.10	
		5% Trimmed Mean		2.01	
		Median		2.00	
		Variance		.321	
		Std. Deviation		.567	
		Minimum		1	
		Maximum		3	
		Range		2	
		Interquartile Range		0	
		Skewness		.002	.204
		Kurtosis		.182	.406
	emotional	Mean		2.21	.059
		95% Confidence Interval for Mean	Lower Bound	2.09	
			Upper Bound	2.33	
		5% Trimmed Mean		2.22	
		Median		2.00	
		Variance		.502	
		Std. Deviation		.708	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		1	
		Skewness		−.083	.202
		Kurtosis		−.558	.401

Figure 55. Descriptive statistics: Behavioural Intention

beh_int_index_rnd	Mean		1.96	.048
	95% Confidence Interval for Mean	Lower Bound	1.86	
		Upper Bound	2.05	
	5% Trimmed Mean		1.90	
	Median		2.00	
	Variance		.646	
	Std. Deviation		.804	
	Minimum		1	
	Maximum		4	
	Range		3	
	Interquartile Range		1	
	Skewness		.732	.144
	Kurtosis		.346	.288

Figure 56. Descriptive statistics: Behavioural Intention
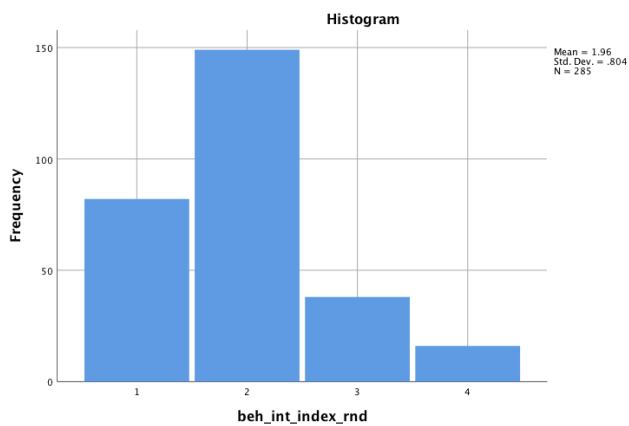
Figure 57. Descriptive statistics: Behavioural Intention (Rational / Emotional)

beh_int_index_rnd	rational	Mean		1.78	.057
		95% Confidence Interval for Mean	Lower Bound	1.67	
			Upper Bound	1.89	
		5% Trimmed Mean		1.73	
		Median		2.00	
		Variance		.458	
		Std. Deviation		.677	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		1	
		Skewness		.720	.204
		Kurtosis		1.020	.406
	emotional	Mean		2.13	.073
		95% Confidence Interval for Mean	Lower Bound	1.99	
			Upper Bound	2.28	
		5% Trimmed Mean		2.09	
		Median		2.00	
		Variance		.773	
		Std. Deviation		.879	
		Minimum		1	
		Maximum		4	
		Range		3	
		Interquartile Range		1	
		Skewness		.553	.202
		Kurtosis		-.261	.401

Figure 61. Correlations, total

Correlations

		scarcity_index_rnd	pastbehavior	perceived_cntrl_index_rnd	sbj_norms_index_rnd	ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd	att_beh_index_rnd	beh_int_index_rnd
scarcity_index_rnd	Pearson Correlation	1	.386**	.263**	-.118*	.073	.095	.202**	.139*	.225**
	Sig. (2-tailed)		.000	.000	.047	.222	.109	.001	.019	.000
	N	285	285	285	285	285	285	285	285	285
pastbehavior	Pearson Correlation	.386**	1	.230**	-.186**	.127*	.022	.299**	.041	.373**
	Sig. (2-tailed)	.000		.000	.002	.033	.705	.000	.487	.000
	N	285	285	285	285	285	285	285	285	285
perceived_cntrl_index_rnd	Pearson Correlation	.263**	.230**	1	-.017	.258**	.363**	.259**	.232**	.321**
	Sig. (2-tailed)	.000	.000		.777	.000	.000	.000	.000	.000
	N	285	285	285	285	285	285	285	285	285
sbj_norms_index_rnd	Pearson Correlation	-.118*	-.186**	-.017	1	.006	.143*	.018	-.119*	.043
	Sig. (2-tailed)	.047	.002	.777		.923	.015	.759	.045	.468
	N	285	285	285	285	285	285	285	285	285
ad_att_index_rnd	Pearson Correlation	.073	.127*	.258**	.006	1	.722**	.569**	.434**	.449**
	Sig. (2-tailed)	.222	.033	.000	.923		.000	.000	.000	.000
	N	285	285	285	285	285	285	285	285	285
arg_qu_index_rnd	Pearson Correlation	.095	.022	.363**	.143*	.722**	1	.516**	.357**	.431**
	Sig. (2-tailed)	.109	.705	.000	.015	.000		.000	.000	.000
	N	285	285	285	285	285	285	285	285	285
sender_cred_index_rnd	Pearson Correlation	.202**	.299**	.259**	.018	.569**	.516**	1	.264**	.439**
	Sig. (2-tailed)	.001	.000	.000	.759	.000	.000		.000	.000
	N	285	285	285	285	285	285	285	285	285
att_beh_index_rnd	Pearson Correlation	.139*	.041	.232**	-.119*	.434**	.357**	.264**	1	.313**
	Sig. (2-tailed)	.019	.487	.000	.045	.000	.000	.000		.000
	N	285	285	285	285	285	285	285	285	285
beh_int_index_rnd	Pearson Correlation	.225**	.373**	.321**	.043	.449**	.431**	.439**	.313**	1
	Sig. (2-tailed)	.000	.000	.000	.468	.000	.000	.000	.000	
	N	285	285	285	285	285	285	285	285	285

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figure 62. Correlations, rational

Correlations (rational)

		scarcity_index_rnd	pastbehavior	perceived_cntrl_index_rnd	sbj_norms_index_rnd	ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd	att_beh_index_rnd	beh_int_index_rnd
scarcity_index_rnd	Pearson Correlation	1	.535**	.246**	-.351**	.021	.026	.275**	.192*	.251**
	Sig. (2-tailed)		.000	.003	.000	.803	.758	.001	.023	.003
	N	141	141	141	141	141	141	141	141	141
pastbehavior	Pearson Correlation	.535**	1	.283**	-.307**	.118	-.017	.404**	.234**	.489**
	Sig. (2-tailed)	.000		.001	.000	.164	.842	.000	.005	.000
	N	141	141	141	141	141	141	141	141	141
perceived_cntrl_index_rnd	Pearson Correlation	.246**	.283**	1	-.066	.266**	.271**	.257**	.300**	.398**
	Sig. (2-tailed)	.003	.001		.434	.001	.001	.002	.000	.000
	N	141	141	141	141	141	141	141	141	141
sbj_norms_index_rnd	Pearson Correlation	-.351**	-.307**	-.066	1	-.021	.104	-.243**	-.339**	-.157
	Sig. (2-tailed)	.000	.000	.434		.801	.222	.004	.000	.062
	N	141	141	141	141	141	141	141	141	141
ad_att_index_rnd	Pearson Correlation	.021	.118	.266**	-.021	1	.617**	.222**	.369**	.296**
	Sig. (2-tailed)	.803	.164	.001	.801		.000	.008	.000	.000
	N	141	141	141	141	141	141	141	141	141
arg_qu_index_rnd	Pearson Correlation	.026	-.017	.271**	.104	.617**	1	.001	.272**	.148
	Sig. (2-tailed)	.758	.842	.001	.222	.000		.993	.001	.079
	N	141	141	141	141	141	141	141	141	141
sender_cred_index_rnd	Pearson Correlation	.275**	.404**	.257**	-.243**	.222**	.001	1	.250**	.342**
	Sig. (2-tailed)	.001	.000	.002	.004	.008	.993		.003	.000
	N	141	141	141	141	141	141	141	141	141
att_beh_index_rnd	Pearson Correlation	.192*	.234**	.300**	-.339**	.369**	.272**	.250**	1	.376**
	Sig. (2-tailed)	.023	.005	.000	.000	.000	.001	.003		.000
	N	141	141	141	141	141	141	141	141	141
beh_int_index_rnd	Pearson Correlation	.251**	.489**	.398**	-.157	.296**	.148	.342**	.376**	1
	Sig. (2-tailed)	.003	.000	.000	.062	.000	.079	.000	.000	
	N	141	141	141	141	141	141	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figure 63. Correlations, emotional

Correlations (emotional)

		pastbehavior	scarcity_index_rnd	perceived_cntrl_index_rnd	sbj_norms_index_rnd	ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd	att_beh_index_rnd	beh_int_index_rnd
pastbehavior	Pearson Correlation	1	.228**	.176*	-.090	.143	.033	.250**	-.114	.298**
	Sig. (2-tailed)		.006	.035	.281	.086	.695	.003	.173	.000
	N	144	144	144	144	144	144	144	144	144
scarcity_index_rnd	Pearson Correlation	.228**	1	.307**	.081	.182*	.196*	.209*	.119	.247**
	Sig. (2-tailed)	.006		.000	.334	.029	.018	.012	.156	.003
	N	144	144	144	144	144	144	144	144	144
perceived_cntrl_index_rnd	Pearson Correlation	.176*	.307**	1	.040	.200*	.396**	.220**	.149	.230**
	Sig. (2-tailed)	.035	.000		.633	.016	.000	.008	.074	.006
	N	144	144	144	144	144	144	144	144	144
sbj_norms_index_rnd	Pearson Correlation	-.090	.081	.040	1	.073	.218**	.193*	.037	.194*
	Sig. (2-tailed)	.281	.334	.633		.383	.009	.021	.663	.020
	N	144	144	144	144	144	144	144	144	144
ad_att_index_rnd	Pearson Correlation	.143	.182*	.200*	.073	1	.693**	.633**	.440**	.453**
	Sig. (2-tailed)	.086	.029	.016	.383		.000	.000	.000	.000
	N	144	144	144	144	144	144	144	144	144
arg_qu_index_rnd	Pearson Correlation	.033	.196*	.396**	.218**	.693**	1	.630**	.358**	.491**
	Sig. (2-tailed)	.695	.018	.000	.009	.000		.000	.000	.000
	N	144	144	144	144	144	144	144	144	144
sender_cred_index_rnd	Pearson Correlation	.250**	.209*	.220**	.193*	.633**	.630**	1	.223**	.434**
	Sig. (2-tailed)	.003	.012	.008	.021	.000	.000		.007	.000
	N	144	144	144	144	144	144	144	144	144
att_beh_index_rnd	Pearson Correlation	-.114	.119	.149	.037	.440**	.358**	.223**	1	.236**
	Sig. (2-tailed)	.173	.156	.074	.663	.000	.000	.007		.004
	N	144	144	144	144	144	144	144	144	144
beh_int_index_rnd	Pearson Correlation	.298**	.247**	.230**	.194*	.453**	.491**	.434**	.236**	1
	Sig. (2-tailed)	.000	.003	.006	.020	.000	.000	.000	.004	
	N	144	144	144	144	144	144	144	144	144

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figure 64. Normality tests

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pastbehavior	.231	285	.000	.894	285	.000
scarcity_index_rnd	.265	285	.000	.864	285	.000
perceived_cntrl_index_rnd	.274	285	.000	.866	285	.000
sbj_norms_index_rnd	.197	285	.000	.890	285	.000
ad_att_index_rnd	.297	285	.000	.856	285	.000
arg_qu_index_rnd	.298	285	.000	.844	285	.000
sender_cred_index_rnd	.224	285	.000	.894	285	.000
att_beh_index_rnd	.310	285	.000	.799	285	.000

a. Lilliefors Significance Correction

Figure 65. Multicollinearity test: Past Behaviour

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	scarcity_index_rnd	.886	1.128
	perceived_cntrl_index_rnd	.804	1.243
	sbj_norms_index_rnd	.923	1.083
	ad_att_index_rnd	.390	2.564
	arg_qu_index_rnd	.412	2.425
	sender_cred_index_rnd	.628	1.593
	att_beh_index_rnd	.774	1.292

a. Dependent Variable: pastbehavior

Figure 66. Multicollinearity test: Direct Experience

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	perceived_cntrl_index_rnd	.803	1.246
	sbj_norms_index_rnd	.906	1.103
	ad_att_index_rnd	.391	2.555
	arg_qu_index_rnd	.400	2.501
	sender_cred_index_rnd	.591	1.691
	att_beh_index_rnd	.775	1.290
	pastbehavior	.814	1.228

a. Dependent Variable: scarcity_index_rnd

Figure 67. Multicollinearity test: Perceived Behavioural Control

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	sbj_norms_index_rnd	.904	1.107
	ad_att_index_rnd	.389	2.572
	arg_qu_index_rnd	.429	2.332
	sender_cred_index_rnd	.588	1.701
	att_beh_index_rnd	.776	1.288
	pastbehavior	.753	1.328
	scarcity_index_rnd	.818	1.222

a. Dependent Variable: perceived_cntrl_index_rnd

Figure 68. Multicollinearity test: Subjective Norms

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	ad_att_index_rnd	.390	2.565
	arg_qu_index_rnd	.413	2.420
	sender_cred_index_rnd	.589	1.698
	att_beh_index_rnd	.784	1.275
	pastbehavior	.750	1.334
	scarcity_index_rnd	.801	1.248
	perceived_cntrl_index_rnd	.784	1.276

a. Dependent Variable: sbj_norms_index_rnd

Figure 69. Multicollinearity test: Attitude toward Advertisement

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	arg_qu_index_rnd	.595	1.680
	sender_cred_index_rnd	.643	1.555
	att_beh_index_rnd	.821	1.218
	pastbehavior	.740	1.352
	scarcity_index_rnd	.808	1.238
	perceived_cntrl_index_rnd	.788	1.270
	sbj_norms_index_rnd	.910	1.099

a. Dependent Variable: ad_att_index_rnd

Figure 70. Multicollinearity test: Argument Quality

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	sender_cred_index_rnd	.610	1.639
	att_beh_index_rnd	.769	1.300
	pastbehavior	.758	1.319
	scarcity_index_rnd	.801	1.249
	perceived_cntrl_index_rnd	.842	1.187
	sbj_norms_index_rnd	.936	1.068
	ad_att_index_rnd	.577	1.732

a. Dependent Variable: arg_qu_index_rnd

Figure 71. Multicollinearity test: Source Credibility

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	att_beh_index_rnd	.767	1.303
	pastbehavior	.784	1.276
	scarcity_index_rnd	.804	1.244
	perceived_cntrl_index_rnd	.784	1.275
	sbj_norms_index_rnd	.905	1.105
	ad_att_index_rnd	.424	2.361
	arg_qu_index_rnd	.414	2.415

a. Dependent Variable: sender_cred_index_rnd

Figure 72. Multicollinearity test: Attitude to Behaviour

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	pastbehavior	.740	1.351
	scarcity_index_rnd	.807	1.239
	perceived_cntrl_index_rnd	.793	1.261
	sbj_norms_index_rnd	.924	1.083
	ad_att_index_rnd	.414	2.416
	arg_qu_index_rnd	.400	2.501
	sender_cred_index_rnd	.588	1.701

a. Dependent Variable: att_beh_index_rnd

Figure 73. Regression analysis: Rational condition group, ELM part

Regression

message = rational

Descriptive Statistics[a]

	Mean	Std. Deviation	N
ad_att_index_rnd	1.88	.722	141
arg_qu_index_rnd	2.08	.598	141
sender_cred_index_rnd	2.18	.848	141

a. message = rational

Figure 74. Regression analysis: Rational condition group, ELM part

Correlations[a]

		ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd
Pearson Correlation	ad_att_index_rnd	1.000	.617	.222
	arg_qu_index_rnd	.617	1.000	.001
	sender_cred_index_rnd	.222	.001	1.000
Sig. (1-tailed)	ad_att_index_rnd	.	.000	.004
	arg_qu_index_rnd	.000	.	.497
	sender_cred_index_rnd	.004	.497	.
N	ad_att_index_rnd	141	141	141
	arg_qu_index_rnd	141	141	141
	sender_cred_index_rnd	141	141	141

a. message = rational

Figure 75. Regression analysis: Rational condition group, ELM part

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.656[b]	.430	.422	.549	.430	52.048	2	138	.000

a. message = rational
b. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd
c. Dependent Variable: ad_att_index_rnd

Figure 76. Regression analysis: Rational condition group, ELM part

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.367	2	15.684	52.048	.000[c]
	Residual	41.583	138	.301		
	Total	72.950	140			

a. message = rational
b. Dependent Variable: ad_att_index_rnd
c. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd

Figure 77. Regression analysis: Rational condition group, ELM part

Coefficients[a,b]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	−.078	.206		−.379	.705			
	arg_qu_index_rnd	.744	.078	.617	9.600	.000	.617	.633	.617
	sender_cred_index_rnd	.189	.055	.222	3.447	.001	.222	.282	.222

a. message = rational
b. Dependent Variable: ad_att_index_rnd

Figure 78. Regression analysis: Rational condition group, ELM part

Residuals Statistics[a,b]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.85	3.28	1.88	.473	141
Std. Predicted Value	−2.164	2.951	.000	1.000	141
Standard Error of Predicted Value	.048	.169	.075	.028	141
Adjusted Predicted Value	.80	3.21	1.88	.469	141
Residual	−.977	1.212	.000	.545	141
Std. Residual	−1.779	2.208	.000	.993	141
Stud. Residual	−1.792	2.216	.003	1.006	141
Deleted Residual	−.990	1.221	.003	.560	141
Stud. Deleted Residual	−1.806	2.249	.003	1.011	141
Mahal. Distance	.061	12.250	1.986	2.378	141
Cook's Distance	.000	.106	.009	.019	141
Centered Leverage Value	.000	.087	.014	.017	141

a. message = rational
b. Dependent Variable: ad_att_index_rnd

Figure 79. Regression analysis: Rational condition group, ELM part

Charts

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: ad_att_index_rnd
message: rational

Figure 80. Regression analysis: Rational condition group, ELM part

Scatterplot
Dependent Variable: ad_att_index_rnd
message: rational
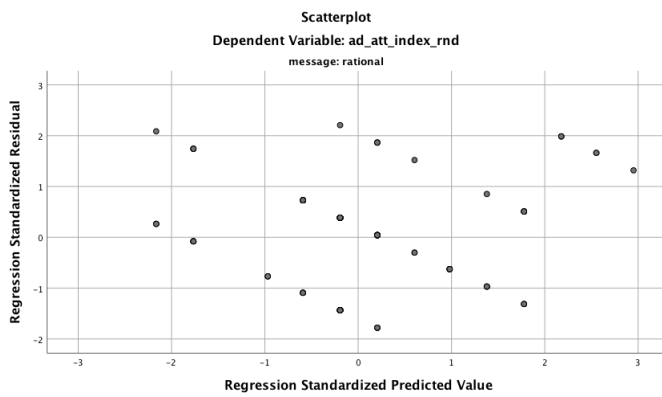
Figure 81. Regression analysis: Rational condition group, TPB part

Regression

message = rational

Descriptive Statistics[a]

	Mean	Std. Deviation	N
beh_int_index_rnd	1.78	.677	141
pastbehavior	2.61	1.206	141
scarcity_index_rnd	2.25	1.036	141
perceived_cntrl_index_rnd	2.11	.961	141
sbj_norms_index_rnd	3.70	.954	141
att_beh_index_rnd	2.01	.567	141
ad_att_index_rnd	1.88	.722	141

a. message = rational

Figure 82. Regression analysis: Rational condition group, TPB part

Correlations[a]

		beh_int_index_rnd	pastbehavior	scarcity_index_rnd	perceived_cntrl_index_rnd	sbj_norms_index_rnd	att_beh_index_rnd	ad_att_index_rnd
Pearson Correlation	beh_int_index_rnd	1.000	.489	.251	.398	-.157	.376	.296
	pastbehavior	.489	1.000	.535	.283	-.307	.234	.118
	scarcity_index_rnd	.251	.535	1.000	.246	-.351	.192	.021
	perceived_cntrl_index_rnd	.398	.283	.246	1.000	-.066	.300	.266
	sbj_norms_index_rnd	-.157	-.307	-.351	-.066	1.000	-.339	-.021
	att_beh_index_rnd	.376	.234	.192	.300	-.339	1.000	.369
	ad_att_index_rnd	.296	.118	.021	.266	-.021	.369	1.000
Sig. (1-tailed)	beh_int_index_rnd	.	.000	.001	.000	.031	.000	.000
	pastbehavior	.000	.	.000	.000	.000	.003	.082
	scarcity_index_rnd	.001	.000	.	.002	.000	.011	.401
	perceived_cntrl_index_rnd	.000	.000	.002	.	.217	.000	.001
	sbj_norms_index_rnd	.031	.000	.000	.217	.	.000	.401
	att_beh_index_rnd	.000	.003	.011	.000	.000	.	.000
	ad_att_index_rnd	.000	.082	.401	.001	.401	.000	.
N	beh_int_index_rnd	141	141	141	141	141	141	141
	pastbehavior	141	141	141	141	141	141	141
	scarcity_index_rnd	141	141	141	141	141	141	141
	perceived_cntrl_index_rnd	141	141	141	141	141	141	141
	sbj_norms_index_rnd	141	141	141	141	141	141	141
	att_beh_index_rnd	141	141	141	141	141	141	141
	ad_att_index_rnd	141	141	141	141	141	141	141

a. message = rational

Figure 83. Regression analysis: Rational condition group, TPB part

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.611[b]	.373	.345	.548	.373	13.304	6	134	.000

a. message = rational

b. Predictors: (Constant), ad_att_index_rnd, scarcity_index_rnd, sbj_norms_index_rnd, perceived_cntrl_index_rnd, att_beh_index_rnd, pastbehavior

c. Dependent Variable: beh_int_index_rnd

Figure 84. Regression analysis: Rational condition group, TPB part

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.961	6	3.993	13.304	.000[c]
	Residual	40.224	134	.300		
	Total	64.184	140			

a. message = rational

b. Dependent Variable: beh_int_index_rnd

c. Predictors: (Constant), ad_att_index_rnd, scarcity_index_rnd, sbj_norms_index_rnd, perceived_cntrl_index_rnd, att_beh_index_rnd, pastbehavior

Figure 85. Regression analysis: Rational condition group, TPB part

Coefficients[a,b]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	.175	.348		.503	.616			
	pastbehavior	.227	.047	.405	4.832	.000	.489	.385	.330
	scarcity_index_rnd	-.029	.055	-.044	-.522	.603	.251	-.045	-.036
	perceived_cntrl_index_rnd	.145	.053	.206	2.719	.007	.398	.229	.186
	sbj_norms_index_rnd	.024	.055	.033	.429	.668	-.157	.037	.029
	att_beh_index_rnd	.232	.097	.194	2.399	.018	.376	.203	.164
	ad_att_index_rnd	.116	.071	.124	1.641	.103	.296	.140	.112

a. message = rational

b. Dependent Variable: beh_int_index_rnd

Figure 86. Regression analysis: Rational condition group, TPB part

Residuals Statistics[a,b]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.94	2.98	1.78	.414	141
Std. Predicted Value	-2.037	2.894	.000	1.000	141
Standard Error of Predicted Value	.054	.207	.118	.030	141
Adjusted Predicted Value	.93	2.97	1.78	.413	141
Residual	-1.200	1.428	.000	.536	141
Std. Residual	-2.190	2.606	.000	.978	141
Stud. Residual	-2.216	2.689	.001	1.003	141
Deleted Residual	-1.229	1.521	.001	.564	141
Stud. Deleted Residual	-2.249	2.755	.001	1.011	141
Mahal. Distance	.352	19.068	5.957	3.622	141
Cook's Distance	.000	.079	.007	.013	141
Centered Leverage Value	.003	.136	.043	.026	141

a. message = rational

b. Dependent Variable: beh_int_index_rnd

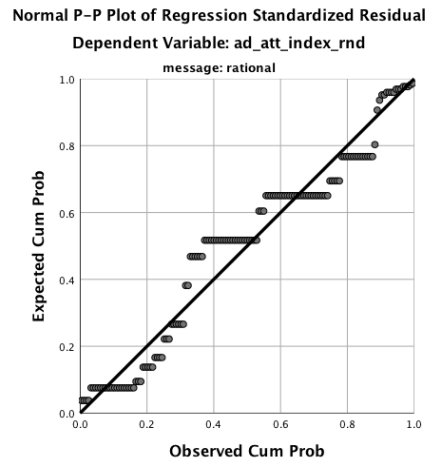*Figure 87. Regression analysis: Rational condition group, TPB part*

Charts

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: beh_int_index_rnd

message: rational

Figure 88. Regression analysis: Rational condition group, TPB part

Scatterplot

Dependent Variable: beh_int_index_rnd

message: rational

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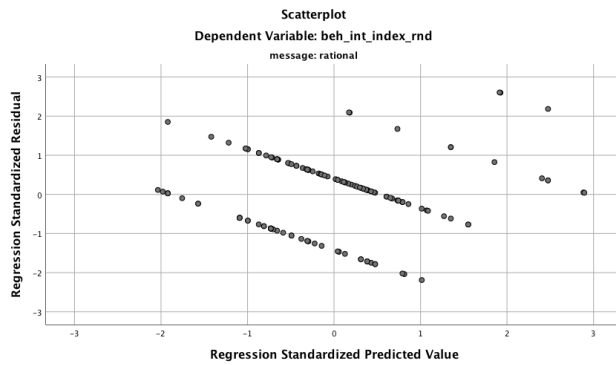
Figure 89. Regression analysis: Rational condition group, AA → AB

Regression

message = rational

Descriptive Statistics[a]

	Mean	Std. Deviation	N
att_beh_index_rnd	2.01	.567	141
ad_att_index_rnd	1.88	.722	141

a. message = rational

Figure 90. Regression analysis: Rational condition group, AA → AB

Correlations[a]

		att_beh_index_rnd	ad_att_index_rnd
Pearson Correlation	att_beh_index_rnd	1.000	.369
	ad_att_index_rnd	.369	1.000
Sig. (1-tailed)	att_beh_index_rnd	.	.000
	ad_att_index_rnd	.000	.
N	att_beh_index_rnd	141	141
	ad_att_index_rnd	141	141

a. message = rational

Figure 91. Regression analysis: Rational condition group, AA → AB

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.369[b]	.136	.130	.529	.136	21.862	1	139	.000

a. message = rational
b. Predictors: (Constant), ad_att_index_rnd
c. Dependent Variable: att_beh_index_rnd

Figure 92. Regression analysis: Rational condition group, AA → AB

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.115	1	6.115	21.862	.000[c]
	Residual	38.878	139	.280		
	Total	44.993	140			

a. message = rational
b. Dependent Variable: att_beh_index_rnd
c. Predictors: (Constant), ad_att_index_rnd

Figure 93. Regression analysis: Rational condition group, AA → AB

Coefficients[a,b]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	1.463	.125		11.741	.000			
	ad_att_index_rnd	.290	.062	.369	4.676	.000	.369	.369	.369

a. message = rational
b. Dependent Variable: att_beh_index_rnd

Figure 94. Regression analysis: Rational condition group, AA → AB

Residuals Statistics[a,b]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.75	2.62	2.01	.209	141
Std. Predicted Value	−1.218	2.938	.000	1.000	141
Standard Error of Predicted Value	.045	.139	.059	.022	141
Adjusted Predicted Value	1.75	2.67	2.01	.210	141
Residual	−1.332	.958	.000	.527	141
Std. Residual	−2.518	1.811	.000	.996	141
Stud. Residual	−2.549	1.818	−.001	1.004	141
Deleted Residual	−1.365	.965	−.001	.535	141
Stud. Deleted Residual	−2.601	1.833	−.001	1.011	141
Mahal. Distance	.028	8.630	.993	1.812	141
Cook's Distance	.000	.081	.007	.012	141
Centered Leverage Value	.000	.062	.007	.013	141

a. message = rational

b. Dependent Variable: att_beh_index_rnd

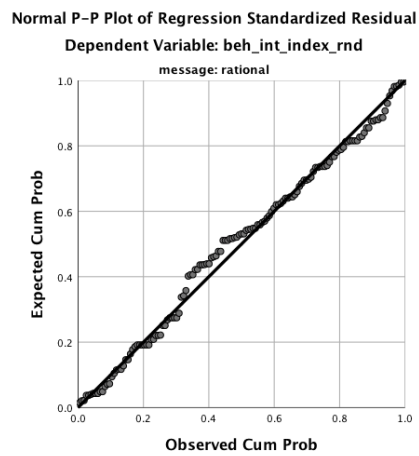*Figure 95. Regression analysis: Emotional condition group, ELM part*

message = emotional

Descriptive Statistics[a]

	Mean	Std. Deviation	N
ad_att_index_rnd	2.88	1.180	144
arg_qu_index_rnd	2.76	1.111	144
sender_cred_index_rnd	2.82	1.255	144

a. message = emotional

Figure 96. Regression analysis: Emotional condition group, ELM part

Correlations[a]

		ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd
Pearson Correlation	ad_att_index_rnd	1.000	.693	.633
	arg_qu_index_rnd	.693	1.000	.630
	sender_cred_index_rnd	.633	.630	1.000
Sig. (1−tailed)	ad_att_index_rnd	.	.000	.000
	arg_qu_index_rnd	.000	.	.000
	sender_cred_index_rnd	.000	.000	.
N	ad_att_index_rnd	144	144	144
	arg_qu_index_rnd	144	144	144
	sender_cred_index_rnd	144	144	144

a. message = emotional

Figure 97. Regression analysis: Emotional condition group, ELM part

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.737[b]	.544	.537	.802	.544	84.037	2	141	.000

a. message = emotional

b. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd

c. Dependent Variable: ad_att_index_rnd

Figure 98. Regression analysis: Emotional condition group, ELM part

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.212	2	54.106	84.037	.000^c
	Residual	90.781	141	.644		
	Total	198.993	143			

a. message = emotional

b. Dependent Variable: ad_att_index_rnd

c. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd

Figure 99. Regression analysis: Emotional condition group, ELM part

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	.592	.189		3.134	.002			
	arg_qu_index_rnd	.518	.078	.488	6.665	.000	.693	.489	.379
	sender_cred_index_rnd	.305	.069	.325	4.433	.000	.633	.350	.252

a. message = emotional

b. Dependent Variable: ad_att_index_rnd

Figure 100. Regression analysis: Emotional condition group, ELM part

Casewise Diagnostics^{a,b}

Case Number	Std. Residual	ad_att_index_rnd	Predicted Value	Residual
165	3.440	5	2.24	2.761
208	3.440	5	2.24	2.761
251	3.440	5	2.24	2.761

a. message = emotional

b. Dependent Variable: ad_att_index_rnd

Figure 101. Regression analysis: Emotional condition group, ELM part

Residuals Statistics^{a,b}

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.42	4.71	2.88	.870	144
Std. Predicted Value	−1.686	2.102	.000	1.000	144
Standard Error of Predicted Value	.068	.212	.111	.033	144
Adjusted Predicted Value	1.40	4.74	2.88	.870	144
Residual	−1.545	2.761	.000	.797	144
Std. Residual	−1.925	3.440	.000	.993	144
Stud. Residual	−1.939	3.459	.001	1.002	144
Deleted Residual	−1.567	2.791	.001	.811	144
Stud. Deleted Residual	−1.958	3.603	.005	1.017	144
Mahal. Distance	.048	8.954	1.986	1.800	144
Cook's Distance	.000	.051	.006	.011	144
Centered Leverage Value	.000	.063	.014	.013	144

a. message = emotional

b. Dependent Variable: ad_att_index_rnd

Figure 102. Regression analysis: Emotional condition group, ELM part

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: ad_att_index_rnd

message: emotional

Figure 103. Regression analysis: Emotional condition group, ELM part

Scatterplot

Dependent Variable: ad_att_index_rnd
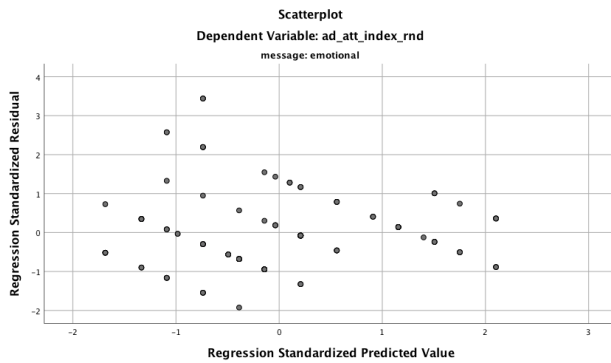
message: emotional

Figure 104. Regression analysis: Emotional condition group, TPB part

message = emotional

Descriptive Statistics[a]

	Mean	Std. Deviation	N
beh_int_index_rnd	2.13	.879	144
pastbehavior	2.67	1.212	144
scarcity_index_rnd	2.13	.918	144
perceived_cntrl_index_rnd	2.38	.961	144
sbj_norms_index_rnd	3.56	1.169	144
att_beh_index_rnd	2.21	.708	144
ad_att_index_rnd	2.88	1.180	144

a. message = emotional

Figure 105. Regression analysis: Emotional condition group, TPB part

Correlations[a]

		beh_int_index_rnd	pastbehavior	scarcity_index_rnd	perceived_cntrl_index_rnd	sbj_norms_index_rnd	att_beh_index_rnd	ad_att_index_rnd
Pearson Correlation	beh_int_index_rnd	1.000	.298	.247	.230	.194	.236	.453
	pastbehavior	.298	1.000	.228	.176	-.090	-.114	.143
	scarcity_index_rnd	.247	.228	1.000	.307	.081	.119	.182
	perceived_cntrl_index_rnd	.230	.176	.307	1.000	.040	.149	.200
	sbj_norms_index_rnd	.194	-.090	.081	.040	1.000	.037	.073
	att_beh_index_rnd	.236	-.114	.119	.149	.037	1.000	.440
	ad_att_index_rnd	.453	.143	.182	.200	.073	.440	1.000
Sig. (1-tailed)	beh_int_index_rnd	.	.000	.001	.003	.010	.002	.000
	pastbehavior	.000	.	.003	.017	.140	.087	.043
	scarcity_index_rnd	.001	.003	.	.000	.167	.078	.014
	perceived_cntrl_index_rnd	.003	.017	.000	.	.317	.037	.008
	sbj_norms_index_rnd	.010	.140	.167	.317	.	.332	.192
	att_beh_index_rnd	.002	.087	.078	.037	.332	.	.000
	ad_att_index_rnd	.000	.043	.014	.008	.192	.000	.
N	beh_int_index_rnd	144	144	144	144	144	144	144
	pastbehavior	144	144	144	144	144	144	144
	scarcity_index_rnd	144	144	144	144	144	144	144
	perceived_cntrl_index_rnd	144	144	144	144	144	144	144
	sbj_norms_index_rnd	144	144	144	144	144	144	144
	att_beh_index_rnd	144	144	144	144	144	144	144
	ad_att_index_rnd	144	144	144	144	144	144	144

a. message = emotional

Figure 106. Regression analysis: Emotional condition group, TPB part

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.564[b]	.318	.288	.742	.318	10.641	6	137	.000

a. message = emotional

b. Predictors: (Constant), ad_att_index_rnd, sbj_norms_index_rnd, pastbehavior, perceived_cntrl_index_rnd, scarcity_index_rnd, att_beh_index_rnd

c. Dependent Variable: beh_int_index_rnd

Figure 107. Regression analysis: Emotional condition group, TPB part

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.123	6	5.854	10.641	.000[c]
	Residual	75.370	137	.550		
	Total	110.493	143			

a. message = emotional

b. Dependent Variable: beh_int_index_rnd

c. Predictors: (Constant), ad_att_index_rnd, sbj_norms_index_rnd, pastbehavior, perceived_cntrl_index_rnd, scarcity_index_rnd, att_beh_index_rnd

Figure 108. Regression analysis: Emotional condition group, TPB part

Coefficients[a,b]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part
1	(Constant)	-.110	.339		-.325	.746			
	pastbehavior	.177	.055	.244	3.221	.002	.298	.265	.227
	scarcity_index_rnd	.079	.073	.082	1.077	.283	.247	.092	.076
	perceived_cntrl_index_rnd	.067	.069	.074	.972	.333	.230	.083	.069
	sbj_norms_index_rnd	.134	.054	.178	2.491	.014	.194	.208	.176
	att_beh_index_rnd	.110	.100	.089	1.099	.274	.236	.093	.078
	ad_att_index_rnd	.251	.061	.337	4.134	.000	.453	.333	.292

a. message = emotional

b. Dependent Variable: beh_int_index_rnd

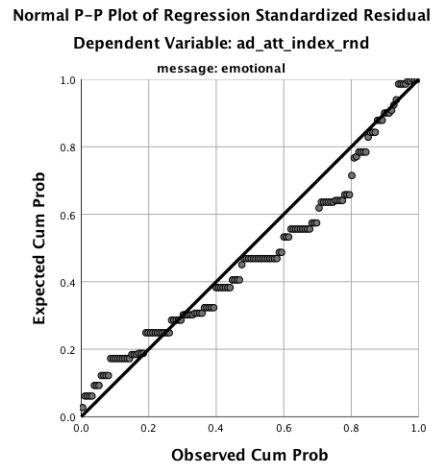*Figure 109. Regression analysis: Emotional condition group, TPB part*

Residuals Statistics[a,b]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.85	3.17	2.13	.496	144
Std. Predicted Value	-2.579	2.100	.000	1.000	144
Standard Error of Predicted Value	.089	.264	.159	.037	144
Adjusted Predicted Value	.84	3.18	2.13	.497	144
Residual	-1.704	1.853	.000	.726	144
Std. Residual	-2.298	2.498	.000	.979	144
Stud. Residual	-2.369	2.620	.001	1.002	144
Deleted Residual	-1.811	2.038	.001	.761	144
Stud. Deleted Residual	-2.410	2.678	.002	1.009	144
Mahal. Distance	1.079	17.105	5.958	3.256	144
Cook's Distance	.000	.098	.007	.012	144
Centered Leverage Value	.008	.120	.042	.023	144

a. message = emotional

b. Dependent Variable: beh_int_index_rnd

Figure 110. Regression analysis: Emotional condition group, TPB part

Charts
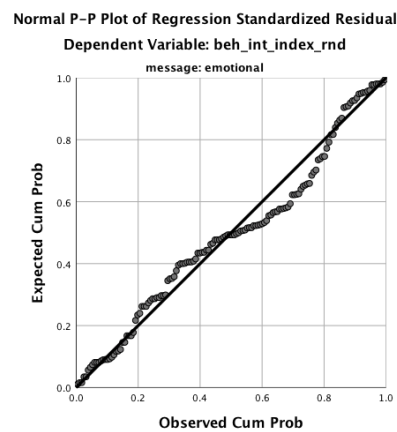
Figure 111. Regression analysis: Emotional condition group, TPB part

121
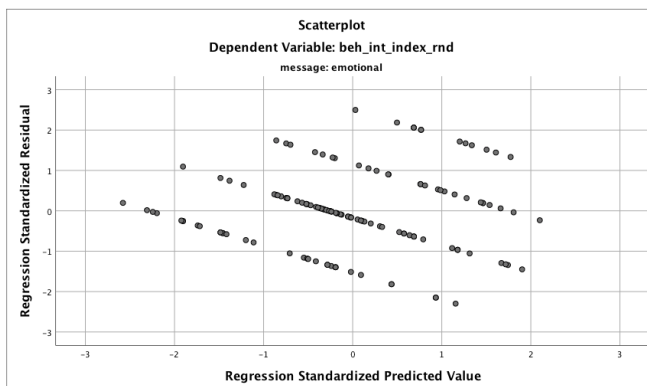
Figure 112. Regression analysis: Emotional condition group, AA → AB

message = emotional

Descriptive Statistics[a]

	Mean	Std. Deviation	N
att_beh_index_rnd	2.21	.708	144
ad_att_index_rnd	2.88	1.180	144

a. message = emotional

Figure 113. Regression analysis: Emotional condition group, AA → AB

Correlations[a]

		att_beh_index_rnd	ad_att_index_rnd
Pearson Correlation	att_beh_index_rnd	1.000	.440
	ad_att_index_rnd	.440	1.000
Sig. (1-tailed)	att_beh_index_rnd	.	.000
	ad_att_index_rnd	.000	.
N	att_beh_index_rnd	144	144
	ad_att_index_rnd	144	144

a. message = emotional

Figure 114. Regression analysis: Emotional condition group, AA → AB

Model Summary[a,c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.440[b]	.193	.188	.638	.193	34.037	1	142	.000

a. message = emotional
b. Predictors: (Constant), ad_att_index_rnd
c. Dependent Variable: att_beh_index_rnd

Figure 115. Regression analysis: Emotional condition group, AA → AB

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.873	1	13.873	34.037	.000[c]
	Residual	57.877	142	.408		
	Total	71.750	143			

a. message = emotional
b. Dependent Variable: att_beh_index_rnd
c. Predictors: (Constant), ad_att_index_rnd

Figure 116. Regression analysis: Emotional condition group, AA → AB

Coefficients[a,b]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	1.447	.141		10.275	.000			
	ad_att_index_rnd	.264	.045	.440	5.834	.000	.440	.440	.440

a. message = emotional
b. Dependent Variable: att_beh_index_rnd

Figure 117. Regression analysis: Emotional condition group, AA → AB

**Residuals Statistics[a,b]**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.71	2.77	2.21	.311	144
Std. Predicted Value	−1.595	1.796	.000	1.000	144
Standard Error of Predicted Value	.053	.110	.073	.017	144
Adjusted Predicted Value	1.70	2.82	2.21	.312	144
Residual	−1.768	1.760	.000	.636	144
Std. Residual	−2.769	2.758	.000	.996	144
Stud. Residual	−2.810	2.767	−.001	1.004	144
Deleted Residual	−1.821	1.773	−.001	.645	144
Stud. Deleted Residual	−2.882	2.835	−.001	1.011	144
Mahal. Distance	.010	3.224	.993	.957	144
Cook's Distance	.000	.120	.007	.015	144
Centered Leverage Value	.000	.023	.007	.007	144

a. message = emotional

b. Dependent Variable: att_beh_index_rnd

Figure 119. Regression analysis: Total sample, ELM part

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
ad_att_index_rnd	2.39	1.100	285
arg_qu_index_rnd	2.42	.956	285
sender_cred_index_rnd	2.50	1.118	285

Figure 120. Regression analysis: Total sample, ELM part

Correlations

		ad_att_index_rnd	arg_qu_index_rnd	sender_cred_index_rnd
Pearson Correlation	ad_att_index_rnd	1.000	.722	.569
	arg_qu_index_rnd	.722	1.000	.516
	sender_cred_index_rnd	.569	.516	1.000
Sig. (1–tailed)	ad_att_index_rnd	.	.000	.000
	arg_qu_index_rnd	.000	.	.000
	sender_cred_index_rnd	.000	.000	.
N	ad_att_index_rnd	285	285	285
	arg_qu_index_rnd	285	285	285
	sender_cred_index_rnd	285	285	285

Figure 121. Regression analysis: Total sample, ELM part

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.758[a]	.574	.571	.720	.574	190.192	2	282	.000

a. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd

b. Dependent Variable: ad_att_index_rnd

Figure 122. Regression analysis: Total sample, ELM part

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	197.285	2	98.643	190.192	.000[b]
	Residual	146.259	282	.519		
	Total	343.544	284			

a. Dependent Variable: ad_att_index_rnd

b. Predictors: (Constant), sender_cred_index_rnd, arg_qu_index_rnd

Figure 123. Regression analysis: Total sample, ELM part

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	.100	.125		.802	.423			
	arg_qu_index_rnd	.672	.052	.584	12.879	.000	.722	.609	.500
	sender_cred_index_rnd	.263	.045	.267	5.891	.000	.569	.331	.229

a. Dependent Variable: ad_att_index_rnd

Figure 124. Regression analysis: Total sample, ELM part

Casewise Diagnostics[a]

Case Number	Std. Residual	ad_att_index_rnd	Predicted Value	Residual
21	3.182	4	1.71	2.292
24	4.206	5	1.97	3.029
67	4.206	5	1.97	3.029
107	3.182	4	1.71	2.292
110	4.206	5	1.97	3.029

a. Dependent Variable: ad_att_index_rnd

Figure 125. Regression analysis: Total sample, ELM part

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.04	4.78	2.39	.833	285
Std. Predicted Value	−1.620	2.868	.000	1.000	285
Standard Error of Predicted Value	.048	.137	.070	.024	285
Adjusted Predicted Value	1.02	4.80	2.39	.833	285
Residual	−1.234	3.029	.000	.718	285
Std. Residual	−1.713	4.206	.000	.996	285
Stud. Residual	−1.719	4.215	.000	1.001	285
Deleted Residual	−1.242	3.043	.000	.724	285
Stud. Deleted Residual	−1.725	4.347	.003	1.010	285
Mahal. Distance	.261	9.304	1.993	2.220	285
Cook's Distance	.000	.035	.003	.006	285
Centered Leverage Value	.001	.033	.007	.008	285

a. Dependent Variable: ad_att_index_rnd
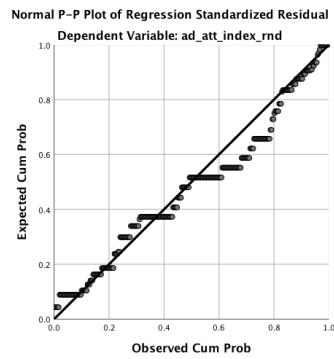
Figure 126. Regression analysis: Total sample, ELM part

Charts

Normal P–P Plot of Regression Standardized Residual
Dependent Variable: ad_att_index_rnd

Figure 127. Regression analysis: Total sample, ELM part

Scatterplot
Dependent Variable: ad_att_index_rnd
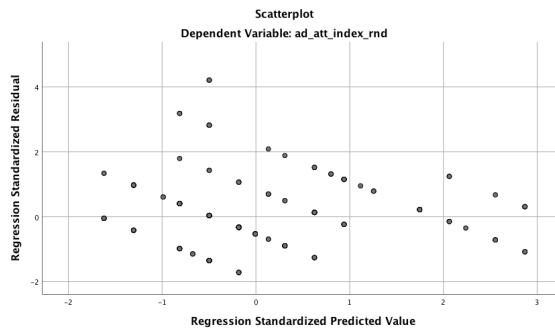
Figure 128. Regression analysis: Total sample, TPB part

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
beh_int_index_rnd	1.96	.804	285
pastbehavior	2.64	1.207	285
scarcity_index_rnd	2.19	.978	285
perceived_cntrl_index_rnd	2.25	.969	285
sbj_norms_index_rnd	3.63	1.069	285
ad_att_index_rnd	2.39	1.100	285
att_beh_index_rnd	2.11	.649	285

Figure 129. Regression analysis: Total sample, TPB part

Correlations

		beh_int_index_rnd	pastbehavior	scarcity_index_rnd	perceived_cntrl_index_rnd	sbj_norms_index_rnd	ad_att_index_rnd	att_beh_index_rnd
Pearson Correlation	beh_int_index_rnd	1.000	.373	.225	.321	.043	.449	.313
	pastbehavior	.373	1.000	.386	.230	-.186	.127	.041
	scarcity_index_rnd	.225	.386	1.000	.263	-.118	.073	.139
	perceived_cntrl_index_rnd	.321	.230	.263	1.000	-.017	.258	.232
	sbj_norms_index_rnd	.043	-.186	-.118	-.017	1.000	.006	-.119
	ad_att_index_rnd	.449	.127	.073	.258	.006	1.000	.434
	att_beh_index_rnd	.313	.041	.139	.232	-.119	.434	1.000
Sig. (1-tailed)	beh_int_index_rnd	.	.000	.000	.000	.234	.000	.000
	pastbehavior	.000	.	.000	.000	.001	.016	.243
	scarcity_index_rnd	.000	.000	.	.000	.024	.111	.009
	perceived_cntrl_index_rnd	.000	.000	.000	.	.388	.000	.000
	sbj_norms_index_rnd	.234	.001	.024	.388	.	.462	.022
	ad_att_index_rnd	.000	.016	.111	.000	.462	.	.000
	att_beh_index_rnd	.000	.243	.009	.000	.022	.000	.
N	beh_int_index_rnd	285	285	285	285	285	285	285
	pastbehavior	285	285	285	285	285	285	285
	scarcity_index_rnd	285	285	285	285	285	285	285
	perceived_cntrl_index_rnd	285	285	285	285	285	285	285
	sbj_norms_index_rnd	285	285	285	285	285	285	285
	ad_att_index_rnd	285	285	285	285	285	285	285
	att_beh_index_rnd	285	285	285	285	285	285	285

Figure 130. Regression analysis: Total sample, TPB part

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.595[a]	.354	.340	.653	.354	25.375	6	278	.000

a. Predictors: (Constant), att_beh_index_rnd, pastbehavior, sbj_norms_index_rnd, perceived_cntrl_index_rnd, scarcity_index_rnd, ad_att_index_rnd

b. Dependent Variable: beh_int_index_rnd

Figure 131. Regression analysis: Total sample, TPB part

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.933	6	10.822	25.375	.000[b]
	Residual	118.562	278	.426		
	Total	183.495	284			

a. Dependent Variable: beh_int_index_rnd

b. Predictors: (Constant), att_beh_index_rnd, pastbehavior, sbj_norms_index_rnd, perceived_cntrl_index_rnd, scarcity_index_rnd, ad_att_index_rnd

Figure 132. Regression analysis: Total sample, TPB part

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	-.147	.233		-.632	.528			
	pastbehavior	.202	.036	.303	5.615	.000	.373	.319	.271
	scarcity_index_rnd	.038	.044	.046	.866	.387	.225	.052	.042
	perceived_cntrl_index_rnd	.106	.043	.128	2.435	.016	.321	.145	.117
	sbj_norms_index_rnd	.092	.037	.123	2.468	.014	.043	.146	.119
	ad_att_index_rnd	.227	.040	.311	5.667	.000	.449	.322	.273
	att_beh_index_rnd	.178	.068	.144	2.611	.010	.313	.155	.126

a. Dependent Variable: beh_int_index_rnd

Figure 133. Regression analysis: Total sample, TPB part

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.84	3.14	1.96	.478	285
Std. Predicted Value	-2.338	2.469	.000	1.000	285
Standard Error of Predicted Value	.046	.182	.099	.024	285
Adjusted Predicted Value	.83	3.14	1.96	.478	285
Residual	-1.787	1.804	.000	.646	285
Std. Residual	-2.736	2.762	.000	.989	285
Stud. Residual	-2.784	2.807	.000	1.001	285
Deleted Residual	-1.850	1.863	.000	.662	285
Stud. Deleted Residual	-2.819	2.843	.001	1.006	285
Mahal. Distance	.439	21.138	5.979	3.462	285
Cook's Distance	.000	.039	.003	.006	285
Centered Leverage Value	.002	.074	.021	.012	285

a. Dependent Variable: beh_int_index_rnd
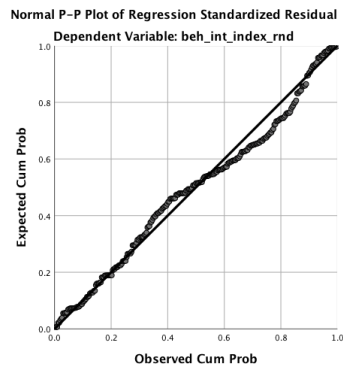
Figure 134. Regression analysis: Total sample, TPB part

Charts

Normal P–P Plot of Regression Standardized Residual
Dependent Variable: beh_int_index_rnd

Figure 135. Regression analysis: Total sample, TPB part

Scatterplot
Dependent Variable: beh_int_index_rnd
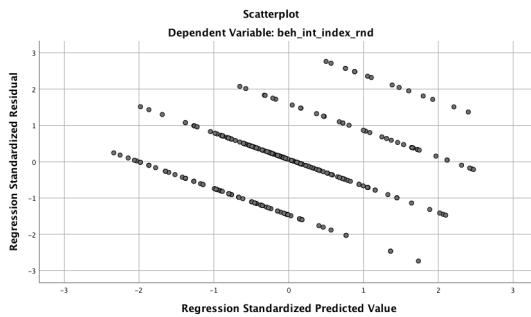
Figure 136. Regression analysis: Total sample, AA → AB

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
AB_final	2.11	.649	285
AA_final	2.39	1.100	285

Figure 137. Regression analysis: Total sample, AA → AB

Correlations

		AB_final	AA_final
Pearson Correlation	AB_final	1.000	.434
	AA_final	.434	1.000
Sig. (1–tailed)	AB_final	.	.000
	AA_final	.000	.
N	AB_final	285	285
	AA_final	285	285

Figure 138. Regression analysis: Total sample, AA → AB

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.434[a]	.189	.186	.586	.189	65.771	1	283	.000

a. Predictors: (Constant), AA_final
b. Dependent Variable: AB_final

Figure 139. Regression analysis: Total sample, AA → AB

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.559	1	22.559	65.771	.000[b]
	Residual	97.069	283	.343		
	Total	119.628	284			

a. Dependent Variable: AB_final
b. Predictors: (Constant), AA_final

Figure 140. Regression analysis: Total sample, AA → AB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.497	.083		18.043	.000					
	AA_final	.256	.032	.434	8.110	.000	.434	.434	.434	1.000	1.000

a. Dependent Variable: AB_final

Figure 141. Regression analysis: Total sample, AA → AB

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.75	2.78	2.11	.282	285
Residual	−1.779	1.734	.000	.585	285
Std. Predicted Value	−1.260	2.377	.000	1.000	285
Std. Residual	−3.037	2.961	.000	.998	285

a. Dependent Variable: AB_final

Figure 143. Sobel test: Total Sample

Input:		Test statistic:	Std. Error:	p-value:
a	0.256	Sobel test: 2.38619995	0.01931104	0.01702349
b	0.180	Aroian test: 2.36939551	0.019448	0.01781719
s_a	0.032	Goodman test: 2.40336707	0.0191731	0.01624487
s_b	0.072	Reset all	Calculate	

Figure 144. Sobel test: Rational condition group

Input:		Test statistic:	Std. Error:	p-value:
a	0.290	Sobel test: 2.89703038	0.03693782	0.00376713
b	0.369	Aroian test: 2.8570632	0.03745454	0.00427581
s_a	0.062	Goodman test: 2.93872319	0.03641377	0.00329567
s_b	0.100	Reset all	Calculate	

Figure 145. Process Mediation test: Total sample

```
Sample
Size:  285

**************************************************************************
OUTCOME VARIABLE:
 AB_final

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4343      .1886      .3430    65.7714     1.0000   283.0000      .0000

Model
               coeff         se          t          p       LLCI       ULCI
constant      1.4974      .0830    18.0427      .0000     1.3340     1.6607
AA_final       .2563      .0316     8.1100      .0000      .1941      .3185


**************************************************************************
OUTCOME VARIABLE:
 BI_final

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4672      .2183      .5086    39.3811     2.0000   282.0000      .0000

Model
               coeff         se          t          p       LLCI       ULCI
constant       .9066      .1482     6.1176      .0000      .6149     1.1983
AA_final       .2818      .0427     6.5972      .0000      .1977      .3659
AB_final       .1797      .0724     2.4824      .0136      .0372      .3222

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ******************

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
      .2818      .0427     6.5972      .0000      .1977      .3659

Indirect effect(s) of X on Y:
              Effect     BootSE   BootLLCI   BootULCI
AB_final       .0460      .0214      .0067      .0907
```

Figure 146. Process Mediation test: Rational condition group

```
Sample
Size:  141

**************************************************************************
OUTCOME VARIABLE:
 ABnew

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .3687      .1359      .2797    21.8622     1.0000   139.0000      .0000

Model
               coeff         se          t          p       LLCI       ULCI
constant      1.4630      .1246    11.7407      .0000     1.2166     1.7093
AAnew          .2895      .0619     4.6757      .0000      .1671      .4119


**************************************************************************
OUTCOME VARIABLE:
 BInew

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4126      .1702      .3859    14.1573     2.0000   138.0000      .0000

Model
               coeff         se          t          p       LLCI       ULCI
constant       .7180      .2066     3.4759      .0007      .3096     1.1264
AAnew          .1709      .0782     2.1838      .0307      .0162      .3256
ABnew          .3692      .0996     3.7056      .0003      .1722      .5662

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ******************

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
      .1709      .0782     2.1838      .0307      .0162      .3256

Indirect effect(s) of X on Y:
              Effect     BootSE   BootLLCI   BootULCI
ABnew          .1069      .0443      .0333      .2062
```

Figure 147. Process Mediation test: Emotional condition group

```
Sample
Size:  144

***************************************************************************
OUTCOME VARIABLE:
 ABnew

Model Summary
         R        R-sq       MSE         F       df1       df2         p
      .4397      .1934     .4076    34.0371    1.0000   142.0000     .0000

Model
             coeff        se         t         p       LLCI      ULCI
constant    1.4474     .1409    10.2752     .0000     1.1689    1.7259
AAnew        .2640     .0453     5.8341     .0000      .1746     .3535

***************************************************************************
OUTCOME VARIABLE:
 BInew

Model Summary
         R        R-sq       MSE         F       df1       df2         p
      .4553      .2073     .6212    18.4406    2.0000   141.0000     .0000

Model
             coeff        se         t         p       LLCI      ULCI
constant    1.0759     .2296     4.6856     .0000      .6220    1.5298
AAnew        .3229     .0622     5.1911     .0000      .1999     .4459
ABnew        .0568     .1036      .5482     .5844     -.1480     .2616

***************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
    Effect        se         t         p       LLCI      ULCI
     .3229      .0622     5.1911     .0000      .1999     .4459

Indirect effect(s) of X on Y:
         Effect    BootSE   BootLLCI   BootULCI
ABnew     .0150     .0287    -.0409      .0731
```

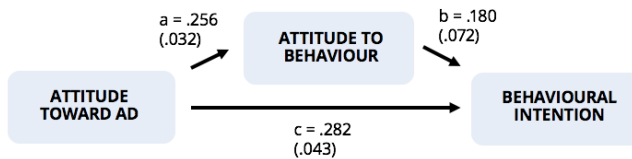*Figure 148. Mediation (Sobel test): Total sample*
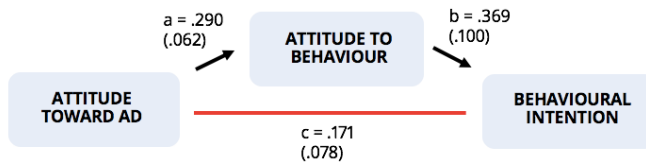

Figure 149. Mediation (Sobel test): Rational
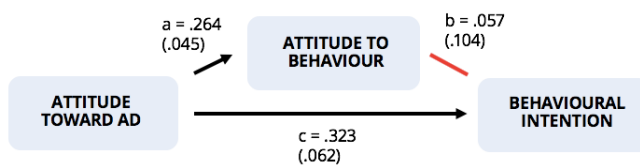

Figure 150. Mediation (Sobel test): Emotional

Figure 151. Comparing means

T-Test

Group Statistics

	message	N	Mean	Std. Deviation	Std. Error Mean
beh_int_index_rnd	rational	141	1.78	.677	.057
	emotional	144	2.13	.879	.073

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
beh_int_index_rnd	Equal variances assumed	4.878	.028	-3.780	283	.000	-.352	.093	-.535	-.169
	Equal variances not assumed			-3.790	268.217	.000	-.352	.093	-.535	-.169

Figure 152. Comparing means
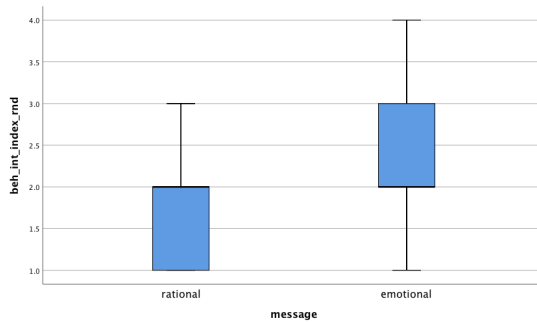
Figure 153. Past behaviour

Frequency Table

pastbehavior

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	53	18.6	18.6	18.6
	somewhat agree	98	34.4	34.4	53.0
	neither agree nor disagree	53	18.6	18.6	71.6
	somewhat disagree	61	21.4	21.4	93.0
	strongly disagree	20	7.0	7.0	100.0
	Total	285	100.0	100.0	

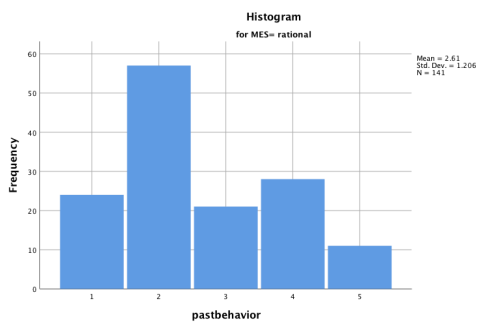*Figure 154. Past behaviour: Rational condition group*

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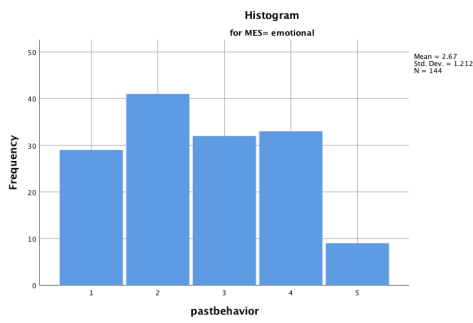*Figure 155. Past behaviour: Emotional condition group*

*Figure 156. Comparison of a mediating effect and direct effects, Rational con-
dition group: AA→BI; AB→BI; PBC→BI; PB→BI*

```
Indirect effect(s) of X on Y:
            Effect      BootSE    BootLLCI   BootULCI
ABnew       .1069       .0443     .0333      .2062

OUTCOME VARIABLE:
 BInew

Model Summary
         R        R-sq       MSE          F        df1        df2          p
      .4126      .1702     .3859    14.1573     2.0000   138.0000      .0000

Model
            coeff        se          t          p       LLCI       ULCI
constant    .7180      .2066     3.4759      .0007      .3096     1.1264
AAnew       .1709      .0782     2.1838      .0307      .0162      .3256
ABnew       .3692      .0996     3.7056      .0003      .1722      .5662


Direct effect of X on Y
    Effect        se          t          p       LLCI       ULCI
    .2209       .0551     4.0080      .0001      .1119      .3298


Direct effect of X on Y
    Effect        se          t          p       LLCI       ULCI
    .2383       .0408     5.8418      .0000      .1576      .3189
```
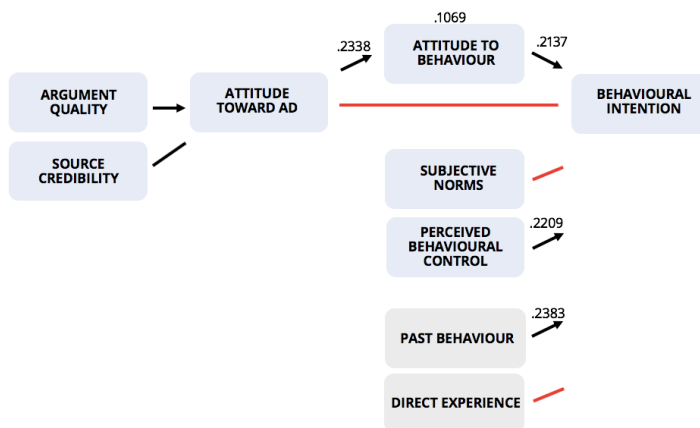
*Figure 157. Comparison of a mediating effect and direct effects, Rational condition
group: AA→BI; AB→BI; PBC→BI; PB→BI*

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Appendix 4: Qualitative answers

Figure 158. Qualitative answers

1	I am not saying that saving water is not important or that individual action is not beneficial. However, the biggest problem for water availability is high use by e.g. big corporations / governments. As with co2 emissions, shifting blame away from those identities onto the individual is counterproductive to the overall goal of figthing climate change / water scarcity. The 22.000 litres saved are really not that big relatively.
2	Hey! I personally think you did a good job, but have something to say in regard of IKEA message I have read. I foundit rational and apropriate, but I also did not face this water problem so can't really relate to it. Thus, I am willing to save water around home and I tend to do this, but I don't really see any other reasons except those I have had before reading the text.
3	Most of the questions were asking for whether the ad convinced me of doing anything, which isn't the case. I'd do it anyways, but not because I believe it makes a real difference but because I do it for my conscience. As long as water waste by consumerism and corporations doesn't get tackled, I see no solution to the underlying problem.
4	I do not take actions at home because I believe that the emphasis on change is disproportionally on individual action rather than governmental regulations or regulating extractive and commercial companies.
5	Companies like IKEA can do far more to help than individuals who are often not able to safely do the actions promoted, especially as companies are causing the problems far more than average people.
6	IKEA and other corporations are pushing consumers into guilt to divert attention from their own actions. Water reductions achieved by reducing shower time are miserable compared to the amounts consumed and polluted by corporations such as IKEA.
7	I'm an environmental scientist and engineer who works with drinking water production. My answers might be somewhat "biased" as I don't believe in greenwashing commercials from not so environmentally friendly companies. I already live as I learn, trying to save water every day, but this kind of advertising only makes me cringe. It feels fake and untrustworthy.
8	Thanks, with a small survey i have realized it's time to start saving water. Every drop counts!
9	Does a landscape have to be replanted with drought-tolerant plants to save significant amounts of water?
10	I have my own well with freshwater, but when it is very arid I have to spare water otherwise i am running out of water.

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