

**Understanding consumer contesting strategies: The
impact of Cialdini's principles of scarcity and social proof
with brand credibility on persuasion knowledge and
contesting strategies.**

Niels Hufen - s2891174

University of Twente, The Netherlands

Master thesis (202001494) Double Degree in Digital Marketing
MSc. Communication Science and MSc. Business Administration

Examination Committee:

First supervisor: Dr. Mirjam Galetzka

Second supervisor: Dr. Yasin Sahhar

April 30, 2024

Word count: 15,789

**UNIVERSITY
OF TWENTE.**

Acknowledgements

I want to express my thanks to those who have supported me while writing my thesis. Firstly, a special thanks to my first supervisor, Dr. Mirjam Galetzka, whose invaluable guidance and support through valuable feedback have benefitted this thesis greatly. Furthermore, I thank my second supervisor, Dr. Yasin Sahhar for his input and support, and a special thanks to him for making time to look at my thesis during his leave. Furthermore, I would like to thank all the respondents who participated in this study. Lastly, I would like to thank my family and friends for their support throughout my whole academic career.

Abstract

Introduction: From a marketing perspective, effective persuasion is a vital aspect of communication, yet it may not always be effective due to the effects of persuasion knowledge on resistance to persuasion. Existing research shows persuasion knowledge can yield positive and negative outcomes, depending on the message's source and what persuasion cues are employed. Among these persuasion cues, the principles of Cialdini have gained popularity making them relevant to explore. However, no previous studies have investigated whether consumers' persuasion knowledge regarding these principles leads to resistance against the persuasion attempt in the form of contesting strategies and if the message's source in the form of brand credibility could potentially moderate this relationship.

Objective: This study aims to address this gap by focussing on the principles of social proof and scarcity, as prior research suggests that these principles may be perceived as manipulative. Prior literature has linked feelings of manipulation to persuasion knowledge and contesting strategies. The current study explores whether the use of persuasion cues and the level of credibility of a brand influence persuasion knowledge and contesting strategies.

Method: To address these questions, this study conducted an online experiment that manipulated scarcity ("Limited availability"), social proof ("Best booking of the year according to travellers") and brand credibility on Dutch highly educated respondents aged between 18 and 29 ($N = 150$) in a travel website context. The travel context was chosen because scarcity and social proof are often utilized on travel websites.

Results: Results indicated that scarcity and social proof did not lead to the activation of persuasion knowledge and contesting strategies. Furthermore, brand credibility did not moderate the relationship. Instead, there was a negative relationship between brand credibility on persuasion knowledge (only scepticism) and contesting (only behaviour and source derogation). Additionally, there were positive associations between persuasion knowledge scepticism and contesting strategies.

Conclusion: The results imply that persuasion knowledge scepticism is an important factor that can help explain contesting strategies. Suggesting that it is important to avoid feelings of scepticism to orchestrate successful persuasion attempts. Additionally, they emphasize the importance of brand credibility for successful persuasion attempts.

Keywords: Persuasion, persuasion knowledge, contesting strategies, consumers, Cialdini principles, social proof, scarcity, brand credibility.

Contents

1. Introduction	6
2. Theoretical Framework	9
2.1 Persuasion	9
2.2 Persuasion principles Cialdini	9
2.2.1 Scarcity	10
2.2.2 Social proof	12
2.3 Resistance against Persuasion	13
2.4 Persuasion Knowledge Model.....	13
2.5 Brand Credibility	15
2.6 Discussion of Hypotheses	17
3. Method	19
3.1 Research Design	19
3.2 Stimulus materials	19
3.2.1 Pre-test	19
3.2.2 Manipulations and stimulus design main study	22
3.3 Procedure	25
3.4 Participants	26
3.5 Measurement	27
3.5.1 Contesting strategies	27
3.5.2 Persuasion knowledge	28
3.5.4 Time scarcity	30
3.5.5 Social proof	30
3.5.6 Brand Credibility	31
3.6 Data analysis plan.....	31
4. Results	34
4.1 Manipulation check.....	34
4.1.1 Social proof	34
4.1.2 Scarcity	34
4.1.3. Time scarcity	34
4.1.4 Brand Credibility	35
4.2 Hypotheses testing	35
4.2.1 Main effect from scarcity to persuasion knowledge and contesting.....	35

4.2.2 Main effect from social proof on persuasion knowledge and contesting strategies. .	36
4.2.3 Brand credibility moderation	37
4.2.4 Association between persuasion knowledge and contesting strategies.	39
4.3 Additional results	40
4.4 Overview results.....	41
5. Discussion and conclusions	42
5.1 Discussion results.....	42
5.2 Implications	46
5.2.1 Theoretical contributions.....	46
5.2.2 Managerial implications	47
5.3 Research limitations and future research	48
References	51
Appendix	68
Appendix A: Different pre-test stimulus.....	68
Appendix B Stimulus brand credibility.....	76
Appendix C. Measurement scales used.....	78
Appendix D Factor analysis.....	82
Appendix E: Reliability analysis	84
Appendix F: Normality and equal variance	88
Appendix G: Non-parametric tests.....	91
Appendix H Testing of moderation on subparts of persuasion knowledge	92

1. Introduction

Persuasion plays a vital role in daily life, as people often try to change the attitudes, opinions, or behaviour of others (Fransen et al., 2015). However, persuasion attempts may not always be successful, as sometimes people do not want to be persuaded or are motivated to resist persuasion attempts (Ringold, 2002). One popular model that aims to explain resistance against persuasion is the Persuasion Knowledge model by Friestad and Wright (1994). Persuasion knowledge refers to “consumers’ theories about persuasion and the related beliefs about marketers’ motives, tactics, and strategies; appropriateness and effectiveness of persuasion tactics; psychological mediators of tactic effectiveness; and ways of coping with various persuasion attempts” (Campbell & Kirmani, 2000, p. 69). It is commonly posited that increasing persuasion knowledge among consumers increases their resistance to persuasion attempts (Friestad & Wright, 1994). An increase in persuasion knowledge has 50% explanatory power over consumer responses (Eisend & Tarrahi, 2021).

Not only in the field of consumer research but also in the field of social psychology has resistance against persuasion been a major interest for researchers. According to McGuire (1964), resistance against persuasion can be enhanced by numerous factors, such as the formulation of a message and the context in which it is presented. Nowadays, a popular way in which messages are formulated to enhance their persuasiveness is through the principles of Cialdini (Cialdini, 2009; Halbesma, 2017). The work of Cialdini has shed light on the mechanisms that drive persuasive influence. Cialdini’s seven principles (Cialdini, 2009; Cialdini, 2016) have been found effective in shaping human behaviour (Cialdini, 2009). However, since these principles work in an automatic way, this can make the principles susceptible to profiteers (Cialdini, 2009). For instance, scarcity can be used by emphasizing that a product will be on sale for a limited time and social proof could be manipulative by using paid actors to give positive evaluations of a product (Isaac & Grayson, 2017). Such scenarios are described as deceptive by consumers (Isaac & Grayson, 2017). These feelings of manipulation could lead to the activation of persuasion knowledge (Friestad & Wright, 1994), as persuasion knowledge can be activated on both an automatic and unconscious level (Laran et al., 2011). Additionally, when persuasive techniques are perceived as deceptive or manipulative, there is a chance that contesting strategies are adopted by consumers (Fransen et al., 2015).

Yet, no paper has combined the principles of Cialdini, persuasion knowledge and contesting strategies together in one paper. Therefore, questions such as if consumers will be able to recognise the persuasion attempt when the principles of Cialdini are used and if this will lead to the activation of persuasion knowledge and contesting strategies remain unanswered. This study answers that question for the principles of scarcity and social proof as these principles were found to be more deceptive, compared to other persuasive techniques. Examining these principles and their relations to persuasion knowledge and contesting strategies can have wide practical implications, such as if the operationalization of scarcity social proof should be reconsidered by practitioners in some cases, as they may lead to resistance against persuasion (Fransen, 2015). Additionally, it could help shed light on how consumers react to manipulative persuasive techniques, which can help policymakers to make new policies for the use of persuasion techniques that could be seen as manipulative. This is highly important because the principles of persuasion are utilized by a lot of businesses (Halbesma, 2017; Loorbach, 2023). Additionally, according to a recent meta-analysis on persuasion knowledge from Eisend and Tarrahi (2021), the activation of persuasion knowledge shows mixed findings for brands. This study could help to partially explain these results by the credibility of the tactic used, which would help to further develop the theoretical understanding of persuasion knowledge. This leads to the main research question of this article: *To what extent does persuasion knowledge of the principles of Cialdini lead to contesting strategies from consumers?*

There are various approaches to address the negative outcomes of persuasion (Fransen, Verlegh, et al., 2015), such as contesting strategies. But one way that has been investigated within the current literature is through the credibility of a source. Previous research indicates that when a source is operationalized through a salesperson, the level of credibility allows consumers to access persuasion knowledge and value offerings more (Isaac & Grayson, 2017; Kirmani & Campbell, 2004). However, the operationalization of a salesperson means that the results cannot be generalized for all evaluation objects, such as a brand (ads) (Eisend & Tarrahi, 2021). Previous research shows that brand equity positively impacts purchase behaviour, reduces the perceived difficulty of a purchase decision, increases confidence in a purchase decision, and decrease anticipated risk in a purchase decision (Broyles et al., 2009). Showcasing that brands can affect consumer behaviour. However, it is currently unexplored whether brands that are perceived as credible can reduce the negative coping effects of persuasion knowledge within an online context similar to the offline context (Isaac & Grayson,

2017; Kirmani & Campbell, 2004). Examining this is relevant for practitioners, as it can provide businesses with an additional incentive to work on their credibility. Additionally, from a theoretical perspective, it can increase understanding of how brand credibility might influence consumer responses and help to explain why scarcity and social proof are successful in some situations, while unsuccessful in others. This leads to the sub-research question of this article: *To what extent does brand credibility play a role in reducing contesting strategies from consumers when persuasion knowledge is activated by the principles of Cialdini?*

To answer both the main research question and the sub-research question, this study combines scarcity, social proof, and brand credibility in a 3x2 experimental research design and examines their impact on persuasion knowledge and contesting strategies. An experiment will be used, as sufficient data is required to investigate the relationship between these various variables of interest. Furthermore, a lot of external factors can influence persuasion knowledge and consumer behaviour (Broyles et al., 2009; Erasmus et al., 2015; Huber et al., 2010; Kirmani & Campbell, 2004; Orji, 2016) which can be minimized through an experiment. The study reconstructs a website environment within an online Qualtrics experiment for a travel agency company, as scarcity and social proof are often used for such travel websites (Halbesma, 2017). Thus, making this a relevant scenario to explore these two principles of Cialdini.

This paper contributes to the understanding of the complex relationship between scarcity and social proof, brand credibility, persuasion knowledge and contesting strategies. By addressing the research questions, this study further advances theoretical and practical knowledge in the field of persuasion and consumer behaviour within an online context. The previous paragraphs described the research problem, research goals, research gap and the theoretical and practical relevance of this research. The second chapter sets out the theoretical framework, which includes persuasion, the persuasion principles of Cialdini, scarcity, social proof, resistance against persuasion, the persuasion knowledge model and brand credibility. Based on the information of the theoretical framework, the hypotheses and the proposed conceptual model are listed. After that, chapter three describes the research design, the stimulus materials, the sampling procedure, the description of the participants and the measurement scales. Furthermore, the fourth chapter describes the results of this study. Finally, the fifth chapter provides a discussion of the results, limitations, with directions for future research and implications for practitioners and researchers.

2. Theoretical Framework

2.1 Persuasion

Persuasion in the context of a technology (e.g., website) refers to a process whereby “a source attempts to shape, reinforce, or change behaviours, or thoughts about an issue, object, or action” (Fogg, 1998, p. 225). Persuasion requires an intent to change attitudes and behaviour (Fogg, 1988). Hence, not every alteration in behaviour or attitude can be attributed to persuasion (Fogg, 1998). Nonetheless, persuasion plays a vital role in people’s everyday lives (Fransen et al., 2015). Persuasion is also a vital process for brands, as one common way to build brand equity is to build favourable brand attitudes (Keller, 1993).

2.2 Persuasion principles Cialdini

One popular way in which the persuasiveness of a message is increased is through the principles of Cialdini. The principles of Cialdini are heuristics that individuals may use as a simplified way of reasoning within an influence setting (Chaiken & Trope, 1999; Fennis & Stroebe, 2015; Kahneman et al., 1982). One of the primary reasons the principles of influence are highly effective is due to their automatic application. (Cialdini & Goldstein, 2004). They allow individuals to make fast decisions because decisions are made simplistically (Cialdini, 2009). Moreover, because they work subtly and indirectly, people may not always know they are being persuaded (Cialdini, 2009).

While persuasion can be a means of effective communication, there is always a certain risk of manipulation or deception (Kampik et al., 2018). When a topic is not interesting to individuals, they are more likely to be influenced by principles of persuasion and will be less likely to pay attention to the quality of the arguments (Petty et al., 1981). Also, culture has been shown to impact the effectiveness and the way a persuasion attempt is viewed when the principles of Cialdini are used (Orji, 2016). Thus, experimental studies that seek to investigate the role of persuasion should strive to minimize cultural differences. There are seven principles of persuasion from Cialdini: authority, commitment and consistency, liking, reciprocity, scarcity, social proof (Cialdini, 2009), and unity (Cialdini, 2016). However, this study only focusses on scarcity and social proof, as these principles were perceived to be the most deceptive by consumers (Isaac & Grayson, 2017). When consumers feel they are being deceived, the activation of persuasion knowledge is more likely (Friestad & Wright, 1994; Isaac & Grayson, 2017). This is important, as the main aim of this study is to further explore resistance against persuasion.

2.2.1 Scarcity

The principle of scarcity states that if something is scarce, individuals assign much more value to it (Cialdini, 2009). The communication of scarcity is often communicated through explicit texts such as “while stocks last” or “already 90% of products are sold.” This leads consumers to think that an offer might become unavailable, which is viewed as a loss of freedom (Cialdini, 2009). According to the reactance theory, whenever freedom of choice is limited, the demand to maintain freedom of choice increases (Brehm, 1966, 1981). By communicating a limited stock or a limited time, consumers are pressured to make decisions quickly (Blattberg et al., 1995), since consumers have a fear of missing out on the opportunity (Khetarpal & Singh, 2023). Moreover, when scarcity is communicated, consumers have the idea that they are competing with other consumers to obtain a limited product (Garretson & Burton, 2003). This leads consumers to think about losing the opportunity to obtain a product (Zhang et al., 2022), which can cause great discomfort as stated by the loss aversion principle (Tversky & Kahneman, 1991). Additionally, scarcity can interfere with consumers’ ability to process information and makes consumers less likely to consider all product attributes and instead rely on simpler decision rules or heuristics to make judgements (Chaiken, 1980; Hoyer, 1984; Payne et al., 1988).

According to Aguirre-Rodriguez (2013), scarcity can be supply-related (supplies are limited) and demand-related (over x products sold). Demand-related scarcity has been shown to activate persuasion knowledge to a greater extent (Aguirre-Rodriguez, 2013). Other authors suggest that what works best may vary depending on the type of product. Ku et al. (2013) suggest that demand-related scarcity amplifies the demand for utilitarian products while diminishing it for hedonic products. Conversely, supply-related scarcity enhances the demand for hedonic products (Ku et al., 2013) and experiences (Barton et al., 2022) while reducing it for utilitarian products (Ku et al., 2013). Moreover, scarcity is effective for both low-involvement products and high-involvement products, but it is most successful for low-involvement products (Huang et al., 2011). Additionally, brand familiarity moderates the impact of scarcity on purchase intention (Jung & Kellaris, 2004). Scarcity positively impacts consumers' purchase intention when a brand is unfamiliar but has no impact when it is familiar (Castro et al., 2013; Jung & Kellaris, 2004). Jung and Kellaris (2004) explain this finding by suggesting that heuristics such as scarcity are used more often when there is no evaluative information available. Hence, when consumers are familiar with a brand, they are less

susceptible to heuristics such as scarcity. Lastly, scarcity effects can be strengthened when consumers are repeatedly exposed to the scarcity cue (Barton et al., 2022).

For more than three decades, research has also been conducted to determine for what consumers scarcity claims work the best. Research shows that supply-caused scarcity claims work better for consumers who have a need for uniqueness (Van Herpen et al., 2007) and are promotion-focused (Ku et al., 2012). On the other hand, demand-related scarcity claims work best for low self-monitors (Ku et al., 2013) or high self-monitors when there is third-party pressure (Ku et al., 2013). When scarcity claims are specifically aligned with the regulatory focus theory, this can reduce the activation of persuasion knowledge (Ayaz & Shah, 2022). Promotion-focused consumers respond better to scarcity claims (e.g., higher ad attitude, engagement and lower persuasion knowledge) as opposed to prevention-focused consumers (Ayaz & Shah, 2022). This is the case because prevention-focused consumers avoid scarcity cues, as this does not align with their goal orientation of risk aversion and safety (Ang et al., 2021; Kees et al., 2010). A lot of research has also been conducted to see if scarcity works better for some age groups and genders, but no significant moderation was found (Barton et al., 2022).

In practice, scarcity can also be applied through limited stocks by supply or demand or by emphasizing that the offer is only there for a limited time (Cialdini, 2009; Fennis & Stroebe, 2015). Therefore, a third form of scarcity is one that utilizes time. Such time-limited offers can increase purchase intention (Aggarwal & Vaidyanathan, 2003; Coulter & Roggeveen, 2012). However, later research by Isaac & Grayson (2017) revealed that some consumers view these time-limited promotions as manipulative. When the expectation of scarcity is low or when there is a perception that the information might be incorrect, this can trigger the activation of persuasion knowledge (Mukherjee & Lee, 2016). This, in turn, can result in diminished effectiveness of scarcity (e.g., reduced perceived product value and time pressure) within an online context (Fenko et al., 2017).

The activation of persuasion knowledge does not reduce the fear of missing out (Khetarpal & Singh, 2023). According to Khetarpal and Singh (2023), this implies that the activation of persuasion knowledge leads to emotions. Therefore, marketers should strive to use scarcity appeals to make their products more wanted without appearing manipulative, as this may lead to unfavourable reactions (Khetarpal & Singh, 2023). For marketers, such unfavourable reactions would be resistance against persuasion. In particular, contesting strategies can occur when consumers feel like they are being manipulated (Fransen et al.,

2015). Resistance to persuasion can also occur when individuals feel that their freedom is being limited (Campbell & Kirmani, 2008), which may be triggered by scarcity (Cialdini, 2009; Zhang et al., 2022). When consumers realize that someone else is trying to persuade them, they may feel as if the salesperson is trying to limit their freedom which then leads to resistance to persuasion (Campbell & Kirmani, 2008) in the form of contesting strategies (Fransen et al., 2015). Since scarcity can lead to a threat to consumers' sense of freedom (Cialdini, 2009) and feelings of manipulation (Isaac & Grayson, 2017) and these are motives for contesting strategies, it is expected that scarcity can lead to contesting strategies. Furthermore, feelings of manipulation have also been linked to persuasion knowledge (Friestad & Wright, 1994).

2.2.2 Social proof

The principle of social proof states that one of the important ways in which individuals determine what to do in a certain situation is to look at others and see what they are doing (Cialdini, 2009). For instance, when individuals see someone happily using a product, they will be more likely to buy that product as well (Cialdini, 2009). Especially when individuals are uncertain about a situation, they are more likely to follow social proof cues (Smith et al., 2007). On the other hand, when individuals are certain about a scenario and they receive contradicting information, they are unlikely to copy the behaviour that is depicted through social proof (Smith et al., 2007).

Social proof seems to work best on individuals who lack the ability and motivation to control their cognitive and behavioural responses, as these target groups are less likely to resist messages that depict social proof (Janssen, 2010). Furthermore, the effectiveness of heuristics such as social proof can be boosted by first asking for other requests to induce self-regulatory resource depletion (Fennis et al., 2009), which will then lead to a reliance on heuristic information processing (Janssen, 2010). Another benefit of resource depletion is that by presenting the persuasive message at the end individuals are less likely to come up with counterarguments against the persuasive message (Knowles & Linn, 2004). Nowadays, within an online setting, social proof can also be applied by showing average product ratings through reviews (Isaac & Grayson, 2017) which is perceived as a credible tactic. But sometimes social proof cues can be faked to profit from consumers (Cialdini, 2009). For instance, through paying actors to use products, this is perceived as very manipulative and not credible by consumers (Isaac & Grayson, 2017). Such feelings of manipulation can lead to the activation of persuasion knowledge (Friestad & Wright, 1994) and contesting strategies (Fransen et al., 2015). Although the literature related to persuasion knowledge and social proof is limited, descriptive social

proof norms for labels have been shown effective in activating persuasion knowledge (Zarouali et al., 2020). Additionally, the activation of persuasion knowledge leads to a reduction in the effectiveness of social proof (e.g., time pressure and product value) (Fenko et al., 2017).

2.3 Resistance against Persuasion

Persuasion is an important communication process and the principles of Cialdini can increase the effectiveness of the persuasion attempt (Cialdini, 2009). However, humans are not without resistance to persuasion (Fransen et al., 2015). Individuals are most successful at resisting persuasion when self-control is high (Burkley, 2008; Fennis et al., 2009; Gillespie et al., 2012; Janssen et al., 2008; Wheeler et al., 2007). According to Fransen, et al. (2015), there are three motivations for individuals to avoid persuasion: a threat to freedom, reluctance to change, and concern for deception. The same authors argue that there are four resistance strategies to resist persuasion: avoidance, contesting, biased processing, and empowerment. Contesting strategies are most likely to occur when individuals are concerned that they are being deceived or when their freedom is being limited. One factor that could increase concerns about deception is persuasion knowledge (Friestad & Wright, 1994).

2.4 Persuasion Knowledge Model

The persuasion knowledge model (PKM) was introduced more than 25 years ago by Friestad and Wright (1994). The model refers to targets as the individuals who are trying to be persuaded and agents as the individuals who attempted to construct the persuasion attempt (Friestad & Wright, 1994). The persuasion attempt can refer to various attempts such as an advertisement, a presentation, or a general message to strategically change the target's attitudes, beliefs, decisions, or actions (Friestad & Wright, 1994).

According to Friestad and Wright (1994), there are three knowledge structures that interact to shape and decide the outcome of a persuasion attempt. Firstly, agent knowledge consists of the traits, goals, and competencies of the persuasion agent. An increase in agent knowledge allows consumers to better reflect on the benefits of agents (Eisend & Tarrahi, 2021). Secondly, topic knowledge refers to general beliefs about the topic of a message. And thirdly, persuasion knowledge refers to theories and beliefs about how the agent attempts to persuade the target.

The development of persuasion knowledge typically improves over time, after the age of 6 (Wellman, 1990), through an increase in processing ability (Evans & Park, 2015) and experience. Individuals encounter more persuasion attempts themselves (Friestad & Wright,

1994) or view persuasion attempts (Campbell & Kirmani, 2000). Therefore, typically older and higher educated consumers have a higher persuasion knowledge (Erasmus et al., 2015). But other factors such as the need for cognition, medium usage, and medium type may lead to individual differences in PK (Boerman et al., 2023). An increase in persuasion knowledge makes consumers more reactant and suspicious of persuasion attempts (Friestad & Wright, 1994) and can increase scepticism and negative attitudes (Friestad & Wright, 1994; Nelson et al., 2009; Wei et al., 2008). Especially when the number of choices is limited, as suggested in the reactance theory (Brehm, 1966). However, targets may not always be aware of a persuasive intent, which might make them unable to activate persuasion knowledge (Friestad & Wright 1999) and make them more vulnerable to persuasion attempts (Hudders et al. 2017; Friestad and Wright 1994; Rozendaal et al. 2011). For instance, during covert advertising, consumers may be unaware of the persuasion attempt. When this is disclosed later, it results in less favourable product and brand perceptions (Campbell et al., 2013; Mohr & Köhl, 2021).

Friestad and Wright (1994) emphasized that an increase in persuasion knowledge can increase resistance against persuasion attempts. However, a recent analysis by Eisend & Tarrahi (2021) found that an increase in persuasion knowledge varied considerably in terms of direction and strength. Some studies find that an increase in persuasion knowledge leads to negative coping responses (e.g., disapproving of the persuasive attempt), cognitive and affective resistance and less favourable evaluations of the brand (Campbell & Kirmani, 2008; Mikolajczak-Degrauwe & Brengman, 2014; van Reijmersdal et al., 2016). On the other hand, there are also studies that show that an increase in persuasion knowledge can have positive outcomes for brands. For instance, stronger brand recognition, and a higher likelihood of acquiring brand knowledge (Eisend & Tarrahi, 2016). Eisend and Tarrahi (2021), suggest that these different results may be attributed to contextual elements such as elements of the message (e.g., humour and communicated benefits about the product), the degree of personalization (i.e., more personalization leading to more negative reactance) (Bleier & Eisenbeiss, 2015) and different persuasion cues (manipulative persuasive cues often leading to negative coping). The same authors also argue that the characteristics of the product (e.g., low involvement and unfamiliar products) can also lead to more negative coping responses. However, later research has also demonstrated that when an agent used a credible tactic in a goal-directed situation and persuasion knowledge was activated, consumers could value the offering more (Isaac & Grayson, 2017; Kirmani & Campbell, 2004). But, when persuasion cues are perceived as deceptive, persuasion knowledge is activated (Fransen et al., 2015; Friestad & Wright, 1994).

Furthermore, feelings of deception have also been linked to contesting strategies (Darke & Ritchie, 2007; Main et al., 2017; Fransen et al., 2015). This occurs because individuals become focused on the tactics that the agent uses to change their behaviour (Fransen et al., 2015). Since both contesting strategies and persuasion knowledge often occur when feelings of manipulation are present (Darke and Ritchie, 2007; Fransen et al., 2015; Main et al., 2007; Sagarin et al., 2002), they are expected to be associated.

2.5 Brand Credibility

According to Eisend and Tarrahi (2021), the source of a message moderates the effect of persuasion knowledge, as agent knowledge was included in the original persuasion knowledge model (Friestad & Wright, 1994). A source can be related to the individual conveying a message in a physical context, but it may also be a brand in the case of a brand advertisement (Eisend & Tarrahi, 2021). Especially within an online context, the source of a message must be perceived as credible for the persuasion attempt to be successful (Jeong & Kwon, 2012). Source credibility, as defined by Kelman and Hovland (1953), relates to the perceived motivation and capability of a message source to deliver truthful and accurate information. Credibility in the form of a salesperson can be established through expertise (Rhine & Severance, 1970) and trustworthiness (Mills & Jellison, 1967). Additionally, credibility can lead to more positive brand evaluations, higher indications of positive behavioural intentions (Breves et al., 2019) and a reduced sense of suspicion regarding ulterior motives (Friedrich & Figl, 2018; Haan & Berkey, 2002). Furthermore, high credibility in the form of a salesperson allows consumers to access persuasion knowledge and value offerings more.

According to Isaac and Grayson (2017), credibility and scepticism that lead to the activation of persuasion knowledge operate on opposite ends of the same continuum. Whereby the perceived credibility of a source can also influence the perceived credibility of a tactic (Campbell 1999; Goldberg & Hartwick 1990; Isaac & Grayson, 2017; Srivastava & Chakravarti 2009). In other words, when a consumer finds the source of a message (e.g., a website or brand) credible, it is more likely that the message itself will be associated with higher credibility (Friedrich & Figl, 2018). Especially within an online context, credibility is important since consumers perceive new media channels as less credible compared to traditional ones (Moore & Rodgers, 2005). Higher brand credibility has also been shown effective in increasing purchase intention (Hanzaee & Taghipourian, 2012), which suggests a more successful persuasion attempt (less resistance). Additionally, an increase in credibility can decrease manipulative intent or deception (Isaac & Grayson, 2017; Kirmani & Zhu, 2007). It is

therefore plausible that brand credibility could result in a reduction of contesting strategies, as this was caused by feelings of manipulation (Fransen et al., 2015).

This expectation is further strengthened due to how social proof works. People are most likely to pay attention to social proof cues when they are uncertain about a situation (Smith et al., 2007). When consumers are in a scenario with high uncertainty and a persuasion attempt is conveyed through a source that is perceived as very credible, the persuasion attempt itself is more successful (Ellis, 1992). This suggests that both credibility and social proof work best in scenarios where uncertainty is high, which could mean that the two are linked.

For scarcity, previous research suggests that scarcity claims can lead to a diminished ad's credibility, which could impact the effectiveness of a persuasive message (Aguirre-Rodriguez, 2013; Jeong & Kwon, 2012; Johar & Sirgy, 1991). Additionally, the credibility of a brand can influence the credibility of an ad (Campbell 1999; Goldberg & Hartwick 1990; Isaac & Grayson, 2017; Srivastava & Chakravarti 2009). Whereby the more credible a brand, the more credible a persuasive message is perceived (Friedrich & Figl, 2018; Isaac & Grayson, 2017). Therefore, it is expected that brand credibility will be able to change the credibility of a message. Higher levels of credibility are associated with lower levels of persuasion knowledge and scepticism towards advertisements (Isaac & Grayson, 2017). Since lower levels of persuasion knowledge were associated with a lower level of resistance against persuasion (Friestad & Wright, 1994; Riana, 2020), a reduction in resistance strategies is also expected. Additionally, time scarcity operates under time pressure, which can interfere with rational decision making which leads consumers to be more dependent upon heuristics (Chaiken, 1980; Hoyer, 1984; Payne et al., 1988) such as source credibility. Lastly, Aguirre-Rodriguez (2013) suggests that to reduce the activation of persuasion knowledge, the scarcity appeal should be perceived as informative. One important prerequisite to a message being informative for consumers is for the company to appear credible (Aguirre-Rodriguez, 2013). Therefore, brand credibility may serve as a moderator for persuasion knowledge and subsequent contesting strategies in the case of scarcity and social proof.

2.6 Discussion of Hypotheses

After a thorough literature review of the main concepts, the hypotheses are presented right after a concise summary of the most important literature.

In the current literature, scarcity in the form of time and dishonest social proof have been linked to feelings of manipulation (Isaac & Grayson, 2017). Furthermore, scarcity has been linked to threats to freedom (Cialdini, 2009). Both feelings of manipulation and threats to freedom have been linked to persuasion knowledge (Friestad & Wright, 1994) and contesting strategies (Fransen et al., 2015). Therefore, both scarcity and social proof are expected to lead to an increase in persuasion knowledge and contesting strategies.

H1: Scarcity will lead to a larger increase in persuasion knowledge and contesting strategies from consumers compared to no scarcity.

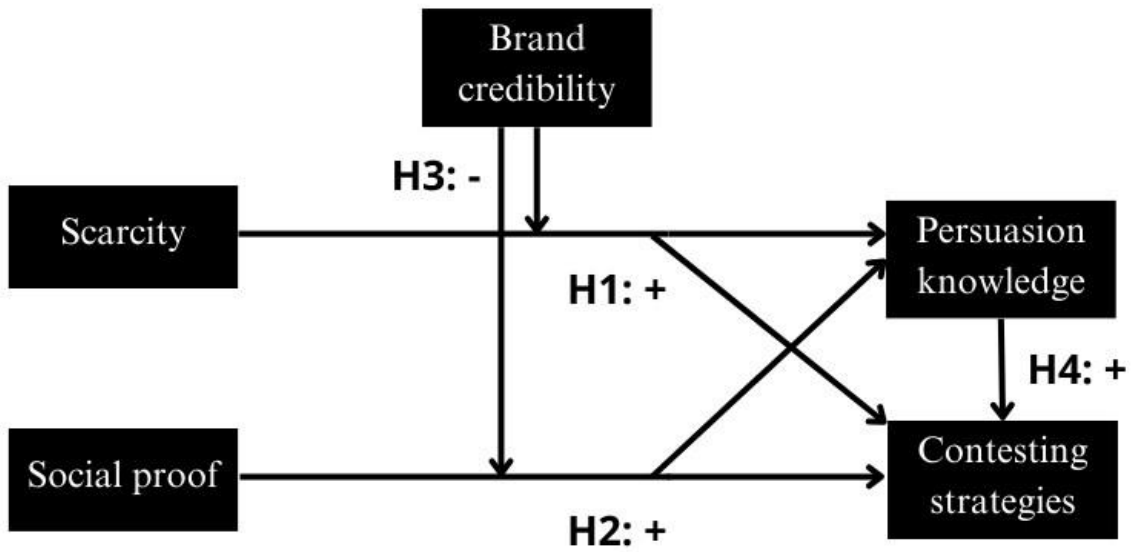
H2: Social proof will lead to a larger increase in persuasion knowledge and contesting strategies from consumers compared to no social proof.

According to previous research, the source of a message can be important for how the persuasion attempt is perceived (Eisend & Tarrahi, 2021; Friestad & Wright, 1994). Since credibility and scepticism operate on opposite ends of the same continuum (Isaac and Grayson, 2017) and the credibility of a source can influence the perceived credibility of a tactic (Campbell 1999; Goldberg & Hartwick 1990; Isaac & Grayson, 2017; Srivastava & Chakravarti 2009), brand credibility could potentially moderate the relationship on persuasion knowledge and contesting strategies. Whereby a high credibility could reduce contesting strategies and PK and a low credibility could increase PK and contesting strategies.

H3: Brand credibility moderates the impact of persuasion knowledge and subsequent contesting strategies, whereby higher levels of brand credibility will lead to a reduction of persuasion knowledge and contesting strategies.

For the majority of literature, persuasion knowledge activation leads to negative effects (Eisend & Tarrahi, 2021). Furthermore, both persuasion knowledge and contesting strategies have both been linked to feelings of manipulation (Darke and Ritchie, 2007; Fransen et al., 2015; Main et al., 2007; Sagarin et al., 2002). Therefore, a positive association between persuasion knowledge and contesting strategies is expected.

H4: An increase in persuasion knowledge will be associated with an increase in contesting strategies from consumers.

Figure 1*Proposed conceptual model*

3. Method

3.1 Research Design

To answer the research questions and hypotheses, a 3x2 research design was employed. Both scarcity and social proof were combined in one single experiment. The experiment contained a control condition (no cue), a condition for scarcity and a condition for social proof. Brand credibility was incorporated as a moderator (low credibility vs. high credibility). This meant that there were six conditions in total; each condition is displayed in Table 1. This research aimed to find out if there were differences in persuasion knowledge and resistance strategies when the principles of Cialdini were utilized and if this varied for different types of brands. A quantitative method (survey) was used for both the pre-test and the experiment, as sufficient data was required to investigate the role of all these different conditions. Furthermore, a lot of external factors can influence persuasion knowledge, such as age (Kirmani & Campbell, 2004), culture (Orji, 2016) and education level (Erasmus et al., 2015). An experiment allowed the research to minimize such external factors as much as possible. Both the experiment and the pre-test were constructed in Qualtrics.

Table 1

Research design

	Low credibility	High credibility
Control condition	Control x low credibility	Control x high credibility
Scarcity Condition	Scarcity x low credibility	Scarcity x high credibility
Social proof condition	Social proof x low credibility	Social proof x high credibility

3.2 Stimulus materials

3.2.1 Pre-test

To test the validity of the manipulations, a pre-test was conducted. All pre-tested stimulus can be found in Appendix A. In total, 41 participants filled out the pre-test survey. However, two participants did not provide consent, three participants were not Dutch, and four participants filled in the survey too fast (< 4 minutes) or did not complete the survey. In the end, this meant that the data of 32 respondents was used for data analysis, slightly above the recommended amount of 30 respondents (Perneger et al., 2014).

For brand credibility, three different brand names with made-up stories were pre-tested. Brand descriptions that were marked with “A” were intended to be perceived as high credibility, whereas brand descriptions with “B” were intended to be perceived as low credibility. Upon reviewing the results of various brand descriptions (Table 2), Bright Vacations A showed the highest score for the condition of high brand credibility ($M = 5.52$). This description also showed one of the lowest standard deviations ($SD = 0.69$). For low credibility Reisrijk B showed the lowest score in credibility ($M = 3.32$) and this description also had the lowest standard deviation ($SD = 0.59$). Therefore, for the final experiment, the descriptions of Bright Vacations A and Reisrijk B were chosen. Within the real experiment, both descriptions were assigned the same name, “Bright Vacations” to limit external factors between the conditions.

Table 2

Brand credibility scores pre-test stimulus

	N	Mean ^a	Std Deviation
Travelspot A	15	4.97	0.68
Reisrijk A	15	5.31	0.96
Bright Vacations A*	17	5.52	0.69
Travelspot B	17	3.82	0.79
Reisrijk B*	17	3.32	0.59
Bright Vacations B	15	3.65	0.64

Note. Descriptions marked with* were the descriptions that were picked for the real experiment.

^a Measurement on a seven-point Likert scale (1 = completely disagree, 7 = completely agree). A Higher mean indicated that the description of the company was perceived as more credible, whereas a lower mean meant that it was perceived as less credible.

To test what claim would be used for the scarcity stimulus, three different claims were tested. Different versions of scarcity claims were based on popular travel websites within the Netherlands (e.g., Booking.com, Tui and Sunweb). The different tested statements were “wees er snel bij” (be quick about it), “beperkt beschikbaar” (limited availability) and “alleen vandaag nog” (Only today). Scores on scarcity and time scarcity showed that the claim “beperkt beschikbaar” (limited availability) had the highest scores in scarcity ($M = 5.14$) and time

scarcity ($M = 5.79$). Therefore, this claim was adopted for the final experiment. Table 3 contains the results of all the different images and their scores on scarcity and time scarcity. The images of the social proof condition were also evaluated for scarcity scores to confirm a lower score in scarcity compared to the scarcity condition itself.

Table 3

Scarcity scores pre-test stimulus

Picture	Participants		Scarcity score		Time scarcity score	
	N		Mean ^a	SD	Mean ^b	SD
Control condition	13		4.37	0.78	4.31	0.93
Be quick about it	20		4.37	0.96	5.28	0.59
Limited availability*	17		5.14	1.26	5.79	1.31
Only today	15		4.21	0.80	5.33	1.14
5 out of 5 rating	16		4.42	0.57	4.66	0.72
Best booking of the year according to travellers	19		4.58	1.08	4.79	1.36
Booked 7 times today	20		4.40	0.60	5.15	1.13

Note. The claim marked with* was the picture that was picked for the real experiment.

^aMeasurement on a seven-point Likert scale (1 = completely disagree, 7 = completely agree). A higher mean indicated that the cue was perceived as scarcer.

^bMeasurement on a seven-point Likert scale (1 = completely disagree, 7 = completely agree). A higher mean indicated that the cue was perceived as higher in time scarcity.

To test what claim would be used for the social proof stimulus, three different claims were tested. Various claims were based on popular travel websites within the Netherlands (e.g., Booking.com, Tui and Sunweb). The different tested claims were “5/5 erg goed 371 reviews” (5/5 based on 371 reviews), “Beste boeking van het jaar volgens reizigers” (best booking of the year according to travellers) and “vandaag al 7 keer geboekt” (booked 7 times today). The images of scarcity were also evaluated for social proof scores to confirm a lower score compared to the social proof condition, see Table 4. Scores on social proof showed that the claims best according to travellers ($M = 5.00$) and the 5/5 rating based on 371 reviews ($M = 4.97$) were perceived to be the highest in scarcity. This research aims to research resistance to persuasion, and this is more likely to occur with feelings of deception (Fransen et al., 2015).

Two statements were also added to assess the truthfulness and authenticity of the claims. The results revealed that the best booking of the year, according to travellers was perceived as less truthful ($M = 4.16$) as compared to a 5/5 rating ($M = 4.65$). Therefore, the statement best booking of the year according to travellers was adopted for the final experiment.

Table 4

Social proof and authenticity + truthfulness scores pre-test stimulus

Picture	Participants		Social proof		Authenticity + truthfulness	
	N	Mean ^a	SD	Mean ^b	SD	
Control condition	13	4.44	0.75	- ^c	-	
5/5 rating based on 371 reviews	16	4.97	0.77	4.65	1.14	
Best booking of the year according to travellers*	19	5.00	0.88	4.15	0.95	
Booked 7 times today	20	4.86	0.80	3.20	1.19	
Be quick about it	20	4.42	0.98	3.38	1.11	
Limited availability	15	4.83	1.19	3.50	1.34	
Only today	15	3.98	0.80	2.67	1.19	

Note. The claim marked with* was the picture that was picked for the real experiment.

^aMeasurement on a seven-point Likert scale (1 = completely disagree, 7 = completely agree). A higher mean indicated that the cue was perceived as social proof.

^bMeasurement on a seven-point Likert scale (1 = completely disagree, 7 = completely agree). A lower mean indicated that the cue was perceived as less truthful and authentic.

^cThere are no measures for the control condition as this condition did not contain a text.

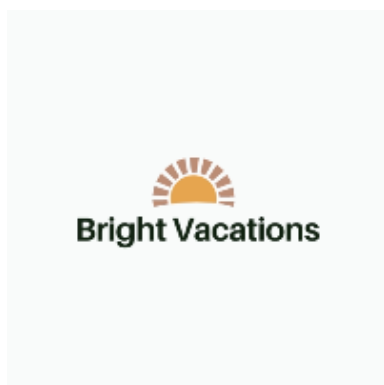
3.2.2 Manipulations and stimulus design main study

To manipulate credibility, this study did not choose existing brands, as existing brands may have higher brand equity or a relationship with the respondents. Both brand equity and a consumer-brand relationship have been shown to impact consumer behaviour (Broyles et al., 2009; Huber et al., 2010). Therefore, this study made up brand names along with a description to manipulate credibility. This was done in a travel context, as social proof and scarcity are often employed by travel brands (Halbesma, 2017). The descriptions with high credibility contained qualifications, as this is a common way to increase the credibility of a source

(Hurwitz et al., 1992). The descriptions used to manipulate brand credibility were based on a previous study conducted by Isaac and Grayson (2017). However, to align with the travel context adopted in this research, the descriptions were changed accordingly. The descriptions that were used in this study can be found in Appendix B. Lastly, one fictional logo was created (Figure 2) for both the high credibility and low credibility conditions, as website visitors of travel websites often pay attention to logos, making it necessary to create a realistic scenario (Godlewski & Zalech, 2022).

Figure 2

Logo used within the experiment



The description of the low credibility contained the following text: “Bright Vacations is a company in the travel industry offering holiday experiences and customer service. However, Bright Vacations' reputation has recently been damaged by controversial and negative feedback. Some travellers have shared disappointing experiences, finding that the great travel experience promised is not always delivered.” The description of high credibility contained the following description: “Bright Vacations is a prominent company in the travel industry, known for its innovative holiday packages and excellent customer service. The company has received prestigious awards from renowned travel companies and is appreciated for its transparent and ethical business practices. Travellers regularly highlight Bright Vacations' commitment to providing unique and unforgettable travel experiences, as evidenced by enthusiastic reviews and recommendations from satisfied customers. “The descriptions listed above are the translated versions of the text that was used, the original Dutch text can also be found in Appendix B.

For the stimulus representing Cialdini's principles, a website was chosen, as websites frequently employ these principles (Halbesma, 2017). This study focused solely on scarcity and social proof, as it aimed to investigate resistance to persuasion. Scarcity and social proof were

expected to lead to resistance against persuasion, as these two principles could be seen as manipulative (Isaac & Grayson, 2017), potentially leading to persuasion knowledge (Friestad & Wright, 1994) and contesting strategies (Fransen et al., 2015). Furthermore, this study focussed on the travel industry because the principles of scarcity and social proof are often used within this industry (Halbesma, 2017; Huang et al., 2020). Therefore, scarcity and social proof were utilized in a travel website setting.

Results from the pre-test showed that it was not possible to show an entire image of a website, as this would make the scarcity and social proof less cue not properly visible. Instead, the image shown within the experiment was limited to a listing of hotel websites. This solution was based on previous research (Park et al., 2020). Scarcity was applied through the text “beperkt beschikbaar” (limited availability) and social proof was applied through the text “beste boeking van het jaar volgens reizigers” (best booking of the year according to travellers). These two texts were chosen based on the pre-test. Both claims are not very specific, but this is intentional. Prior research has demonstrated that as claims become less specific, they often encounter more resistance against persuasion (Lee & Song, 2010). The used stimulus can be seen in Figures 3, 4 and 5.

Figure 3

Control condition

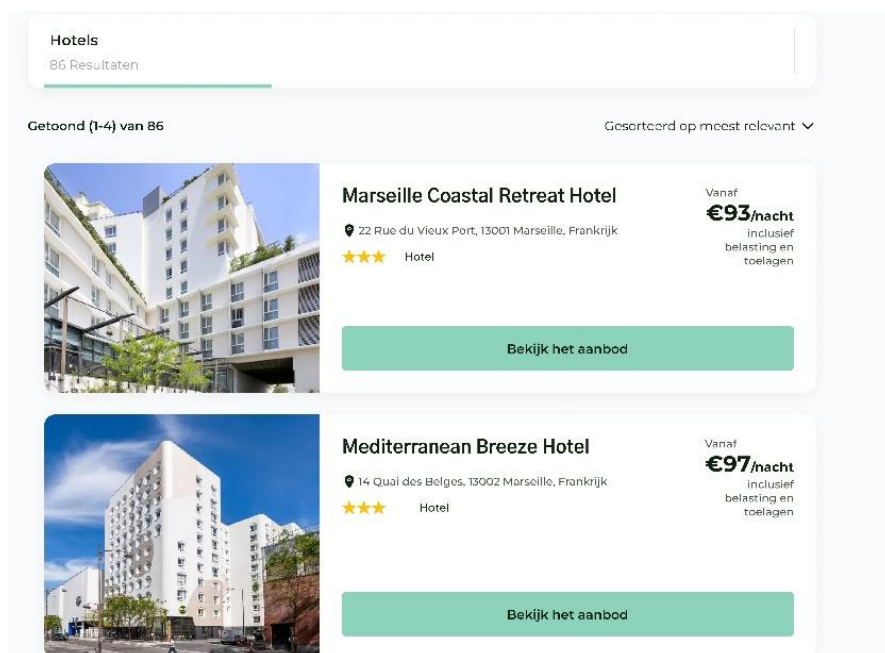


Figure 4

Social proof condition

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant

Marseille Coastal Retreat Hotel
 22 Rue du Vieux Port, 13001 Marseille, Frankrijk
 3.5 Hotel
 Vanaf **€93/nacht** inclusief belasting en toelagen
Beste booking van het jaar volgens reizigers
 Bekijk het aanbod

Mediterranean Breeze Hotel
 14 Quai des Belges, 13002 Marseille, Frankrijk
 3.5 Hotel
 Vanaf **€97/nacht** inclusief belasting en toelagen
 Bekijk het aanbod

Figure 5

Scarcity condition

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant

Marseille Coastal Retreat Hotel
 22 Rue du Vieux Port, 13001 Marseille, Frankrijk
 3.5 Hotel
 Vanaf **€93/nacht** inclusief belasting en toelagen
Beperkt beschikbaar
 Bekijk het aanbod

Mediterranean Breeze Hotel
 14 Quai des Belges, 13002 Marseille, Frankrijk
 3.5 Hotel
 Vanaf **€97/nacht** inclusief belasting en toelagen
 Bekijk het aanbod

3.3 Procedure

Both the pre-test and the actual experiment were constructed through Qualtrics and launched after ethical approval from the Ethics Committee from the University of Twente. Sampling was

done through various different sources. Firstly, the survey was distributed through platforms that allow researchers to get free participants by helping others with their research (e.g., SurveyCircle and SurveySwap). Secondly, the survey was distributed through the University of Twente's subject pool, referred to as "SONA." And lastly, the survey was distributed on social media platforms (e.g., WhatsApp, LinkedIn and Facebook). On the post to ask for respondents a remark was made to ask for this post to be reposted to create a snowball effect on social media. All approaches can be characterized as convenience sampling. Since the survey had a specific target group, problems with the number of participants were anticipated. To increase the number of respondents, one €50 Bol.com voucher was given away in a raffle.

3.4 Participants

Based on the theoretical framework, persuasion knowledge improves over time (Wellman, 1990) through an increase in processing ability (Evans & Park, 2015). Older and highly educated consumers have higher persuasion knowledge (Campbell & Kirmani, 2000). The minimum age of the survey was set at 18 years old, as the principles of Cialdini could be considered manipulative (Isaac & Grayson, 2017). Additionally, eighteen years old was also used as a threshold for other studies that investigate a travel context for a website (Agag & El-Masry, 2016; Park et al., 2020). Participants' maximum age was set at 29, as previous research by Kirmani and Campbell (2004) related to persuasion knowledge and age used the age of 29 as a boundary between young participants and middle-aged participants. This study found that resistance to persuasion was higher for older participants. To limit persuasion knowledge differences caused by age, this study only focusses on younger participants who are aged between 18 and 29. Additionally, culture also has been shown to influence persuasion processes (Orji, 2016). Therefore, this study strived to obtain a homogenous sample consisting of individuals of comparable age, educational background and cultural characteristics, to minimize persuasion knowledge differences caused by external factors besides the stimulus materials. Since this research was conducted within the Netherlands, the target group was set to be individuals who are conducting education within higher education or who have completed higher education. According to the Dutch Government (Ministerie van Onderwijs, Cultuur en Wetenschap) (2022), higher education in the Netherlands consists of HBO (higher vocational education) and WO (scientific education). Based on this information, the target group was set to Dutch individuals aged between 18 and 29 with a (completed) HBO or WO background.

This approach resulted in a total of 264 people who filled in the survey. However, four participants were excluded, because they did not provide consent. Additionally, 82 participants

were excluded, because they were not part of the target group. Among the 82 participants, 58 participants excluded due to nationality, 11 were excluded due to age and 13 were excluded due to level of education. Lastly, 17 participants were excluded due to filling in the survey too fast or not seriously (same answers) and 11 participants were deleted, because they did not answer the control question correctly. The control question was a question which asked participants what text was listed below the first hotel. All in all, 150 respondents were used for the data analysis. The majority of the sample consisted of females (66.7%); the spread across conditions can be viewed in Table 5. A Chi-Square test among experimental conditions revealed that the gender distribution was not significantly different across experimental conditions $X^2(5, N = 150) = 4.501, p = .480$. All other demographics (age, nationality and level of education) were kept constant within the experiment as described.

Table 5

Descriptives gender

		Control (no cue)	Scarcity	Social proof
Low credibility	Male	7	10	13
	Female	13	12	21
High credibility	Male	10	7	8
	Female	12	21	14

3.5 Measurement

This section covers the various scales that were used to measure all concepts. All scales were changed to Dutch as this study only targeted Dutch individuals. The most important changes are described, but the original scales can still be viewed in Appendix C, along with the exact used (Dutch) scales. Additionally, the results from the factor analysis can be found in Appendix D and the reliability analysis using Cronbach's alpha can be found in Appendix E. The most important decisions from these analyses were documented in the text of each measured concept.

3.5.1 Contesting strategies

According to Fransen et al. (2015), contesting can be related to the content, the source and the strategies used. The operationalization of contesting was based on these contesting types (Herlaar, 2020). There were four statements that tested the challenging the content of the message ($\alpha = .753$), and two statements that measured source derogation ($\alpha = .855$) (Herlaar,

2020). Lastly, four additional statements were added to see if resistance was limited to only cognitive changes, but if it could also lead to behaviour change. These statements were related to ignoring information, not booking and leaving the website. The original reliability of resistance in the form of behaviour change scale was sufficient ($\alpha = .806$) but was improved when the statement “I ignore the information of the website of Bright Vacations was removed”, this resulted in a reliability of ($\alpha = .890$). Table 6 shows a list of the statements that were used and translated into English. All the statements of contesting the message item, source derogation and contesting behaviour together form a total score for contesting. Additionally, each subscale also allowed the testing of one subpart of contesting (e.g., only source derogation).

Table 6

Contesting measurement

Description	Item
Contesting the message 1	I devise arguments against the information on the website.
Contesting the message 2	I look for weaknesses in the argumentation of information on the website.
Contesting the message 3	I think of ways in which I disagree with the information presented on the website
Reliability score <i>contesting the message</i>	$\alpha = .753$
Source derogation 1	I have negative thoughts about Bright Vacations
Source derogation 2	I think unfavourably of Bright Vacations, the brand that created this website
Reliability score <i>source derogation</i>	$\alpha = .855$
Contesting behaviour 1	I ignore the information from the Bright Vacations website.
Contesting behaviour 2	I would not book my holidays with Bright Vacations.
Contesting behaviour 3	I would leave the Bright Vacations website.
Contesting behaviour 4	I would book my holidays on another website.
Reliability score <i>contesting behaviour</i>	$\alpha = .890$

Note. The items used in the real survey were in Dutch and are listed in Appendix C.

3.5.2 Persuasion knowledge

Persuasion knowledge was measured by *understanding the intent* (Rozendaal et al., 2010) which contained six items ($\alpha = .621$), of those six items, two items measured understanding the selling intent, two items measured understanding the persuasive intent and two items were about the informational intent (Rozendaal et al., 2010; Tutaj & Van Reijmersdal, 2012).

Furthermore, persuasion knowledge was also assessed through *scepticism* towards advertising, which originally contained nine items (Obermiller & Spangenberg, 1998). The measurement of persuasion knowledge through these two various concepts was based on previous research (Tutaj & Van Reijmersdal, 2012). Both scales were measured on a seven-point Likert scale and slightly adjusted to fit the purpose of a website and were also translated into Dutch. One item was removed from the scepticism towards advertising scale (Obermiller & Spangenberg, 1998) as it contained an old phrase that was not used anymore. Scepticism towards advertising scored high on reliability ($\alpha = .880$). All the items that were used in this research for persuasion knowledge can be found in Table 7.

Table 7

Persuasion knowledge measurement

Description	Item
PK understanding intent 1	The purpose of this website is to sell holidays
PK understanding intent 2	The aim of this website is to boost holiday sales
PK understanding intent 3	The purpose of this website is to influence your opinion.
PK understanding intent 4	The aim of this website is to ensure that people love this holiday more.
PK understanding intent 5	The purpose of this website is to provide information on holidays.
PK understanding intent 6	The purpose of this website is to let people know more about holidays.
Reliability score <i>PK understanding intent</i>	$\alpha = .621$
PK Scepticism 1 ^a	We can be sure that the truth is contained in this website.
PK Scepticism 2	This website is intended to inform consumers
PK Scepticism 3	This website is informative
PK Scepticism 4	This website contains the truth
PK Scepticism 5	This website is a reliable source of information on quality holidays.
PK Scepticism 6	This website gives a true picture of the holidays advertised
PK Scepticism 7	I feel correctly informed after seeing this website
PK Scepticism 8	This website provides consumers with essential information.
Reliability score <i>PK scepticism</i>	$\alpha = .880$

Note. PK stands for Persuasion knowledge

^a All items for PK scepticism were reverse-coded so that a higher score indicated more scepticism.

3.5.3 Perceived scarcity

For the manipulation check of scarcity, an existing scale was used for perceived scarcity (Wu et al., 2012), which contained five items ($\alpha = .812$) and was measured on a 7-point Likert scale.

However, one item, "I think the current offer of this holiday is limited" was removed, as doing so improved Cronbach's alpha from .780 to .812. All the items that were used in the study can be found in Table 8.

Table 8

Perceived scarcity measurement

Description	Item
Perceived scarcity 1	I think this holiday will sell out quickly.
Perceived scarcity 2	I think a lot of people want to book this holiday
Perceived scarcity 3	I think a temporary deal for this holiday will make many people want to book this holiday
Perceived scarcity 4	I think the limited offer of this holiday will make many people book it.
Reliability score <i>perceived scarcity</i>	$\alpha = .812$

3.5.4 Time scarcity

Besides scarcity, this study also measured perceived time scarcity, using two items ($\alpha = .885$) (Gupta & Gentry, 2015) on a 7-point Likert scale, since the theoretical framework discussed that consumers could find scarcity claims manipulative (Isaac & Grayson, 2017). However, the statement that was presented to consumers during the study by Isaac and Grayson (2017) operationalised this by emphasizing that the product will only be on sale for a "limited time" (Isaac & Grayson, 2017, p. 900), implying that scarcity was primarily operationalized through time scarcity. Since the study from Isaac and Grayson (2017) was used to form the hypothesis, this study also aimed to operationalize scarcity through time scarcity, which was assessed through the manipulation check of perceived time scarcity (Gupta & Gentry, 2015). The two items of this scale are listed in Table 9.

Table 9

Perceived time scarcity measurement

Description	Item
Perceived time scarcity 1	I think Bright Vacations is deliberately limiting the time to book this holiday
Perceived time scarcity 2	I think the time limitation for this holiday was strategically created by Bright Vacations
Reliability score <i>time scarcity</i>	$\alpha = .885$

3.5.5 Social proof

This study also used a scale for perceived popularity to assess social proof (Van Herpen et al., 2009), which contained three items and was measured on a 7-point Likert scale ($\alpha = .920$). All three translated items are listed in Table 10.

Table 10*Perceived popularity measurement*

Description	Item
Social proof item 1	This holiday is popular.
Social proof item 2	I think a lot of people want to book this holiday.
Social proof item 3	This holiday is booked a lot
Reliability score <i>perceived popularity</i>	$\alpha = .920$

3.5.6 Brand Credibility

Brand credibility was measured on an existing 7-point Likert scale that contained five items ($\alpha = .875$) (Erdem & Swait, 2004). On this scale, one item contained two denials within the question and was therefore changed so it only contained one denial. Additionally, one question was about the experiences with a brand over time. Since a fictional brand was made up for this study, this was the first encounter respondents had with this brand. This statement was therefore removed. Additionally, the original scale (Erdem & Swait, 2004) used “this brand” within the question. Within the experiment, questions were changed to the fictional brand used in this experiment (Bright Vacations) to make the questions more clear. For example, the statement “This brand reminds me of someone who is competent” (Erdem & Swait, 2004, p. 193) was changed to “Bright Vacations reminds me of someone who is competent.” All the used items for the scale can be found in Table 11.

Table 11*Brand credibility measurement*

Description	Item
Brand credibility 1	Bright Vacations reminds me of someone who is competent and knows what they are doing
Brand credibility 2	Bright Vacations has the ability to deliver what it promises.
Brand credibility 3	Bright Vacations' claims about holidays are credible.
Brand credibility 4	Bright vacations can be trusted
Brand credibility 5	Bright Vacations pretends to be something it is not.
Brand credibility 6	Bright Vacations delivers what it promises.
Reliability score <i>brand credibility</i>	$\alpha = .875$

3.6 Data analysis plan

The following paragraph contains a description of the data analysis that was used for this study using SPSS. Firstly, this study tested the differences between the experimental conditions for gender using a Chi-square test. Other demographics (age and country, level of education) were not checked as they were standardized for the experiment. After that, a manipulation check was

conducted to see if manipulations for scarcity, social proof and brand credibility were perceived as intended. For manipulation checks on (time) scarcity and social proof, a one-way ANOVA was conducted to check if the manipulation score was correct for each condition. An ANOVA would allow for the comparison not only between the control and the desired condition (e.g., social proof) but also between scarcity and social proof for each manipulation check. Bonferroni was used since there were only a few comparisons to be made and to reduce the likelihood of type 1 errors (Armstrong, 2014). Additionally, Bonferroni is a measure that is suited when the distribution is not perfectly distributed across conditions (Shingala & Rajyaguru, 2015). That was the case within this experiment as can be noted in Table 12. For brand credibility, a t-test was used as the comparison was only between low credibility and high credibility.

Table 12

Distribution across experimental conditions

	Low credibility	High credibility
Control	20	24
Scarcity	22	28
Social proof	34	22

For hypotheses 1, the main effect from scarcity on PK and contesting and hypothesis 2, the main effect from social proof on persuasion knowledge and contesting, a general multivariate linear model was used because multivariate models work better compared to a MANOVA when the distribution across conditions is not perfect (see Table 12) (Schuster & Lübbe, 2015). Besides the multivariate linear model, descriptives were also included to better understand the data. The main benefit of using a multivariate linear model was that it allowed for the test of multiple dependent variables required in this case.

Not every dependent variable in each condition showed normality and equal variance (see Appendix F), so non-parametric tests were also conducted to see if this led to different results, these can be viewed in Appendix G. When these tests yielded significant results, they were mentioned within the main results. For most variables and conditions, normality and equal variance could be assumed, therefore a multivariate general linear model was a suited method

for hypotheses one and two. Wilks 'Lambda was used for the overall multivariate test, as this is the best test to use when the dataset is not perfectly balanced (Ateş et al., 2019).

For hypothesis one, it was intended to compare the specific condition (scarcity) with all other conditions (control and social proof). However, the manipulation checks revealed that the social proof condition was also viewed as high in (time) scarcity. Since it was vital that the comparison was made between scarcity and no scarcity the analysis was therefore only made between the scarcity condition and the control condition. The same procedure was used for hypothesis 2.

For hypothesis 3, the moderation of brand credibility was tested through PROCESS macro (Hayes, 2021). The analysis was split up to test for the effects of both scarcity and social proof separately. Lastly, to test if an increase in persuasion knowledge was associated with contesting strategies (hypothesis 4), a simple correlation analysis was conducted. Pearson R was used for this, as all variables measured had a high level of measurement (interval).

For additional analyses, tests were conducted to investigate if there was a direct effect from brand credibility on persuasion knowledge and contesting strategies. Furthermore, mediation analyses were conducted between various variables, and when they led to significant results, they were mentioned in the text.

4. Results

4.1 Manipulation check

Before testing the main results, the manipulations of scarcity and social proof were checked by comparing the control condition (no cue) with the social proof condition and scarcity conditions.

4.1.1 Social proof

Results from the ANOVA revealed that there were significant differences in the social proof score between the conditions, $F(2, 147) = 3.756$; $p = .026$. The social proof condition ($M = 4.55$, $SD = .97$) showed significantly higher scores in social proof ($p = .039$) compared to the control condition ($M = 4.02$, $SD = 1.07$). However, participants did not perceive the social proof condition ($M = 4.55$, $SD = .97$) as significantly more indicative of social proof ($p = 1.000$) when compared to the scarcity condition ($M = 4.52$, $SD = 1.11$). Therefore, the manipulation of social proof did not go as intended. To resolve this for the analysis of the main results, the comparison was only made between social proof and the control condition, as this difference was significant.

4.1.2 Scarcity

Results from the ANOVA revealed that there were significant differences in the scarcity score between all conditions, $F(2, 147) = 6.793$; $p = .002$. The scarcity condition ($M = 4.64$, $SD = .88$) showed significantly higher scores ($p = .002$) on scarcity compared to the control condition ($M = 3.93$, $SD = 1.01$). However, participants did not perceive the scarcity condition ($M = 4.64$, $SD = .88$) as significantly more scarce ($p = 1.000$) when compared with the social proof condition ($M = 4.48$, $SD = 1.01$). Therefore, the manipulation of scarcity also did not go as intended. To resolve this for the analysis of the main results, the comparison was only made between scarcity and the control condition, as this was significant.

4.1.3 Time scarcity

For time scarcity, equal variance could not be assumed since Levene's test showed differences between the groups based on the means ($p = 0.002$). When equal variance can not be assumed the Games-Howell is a more suitable test (Shingala & Rajyaguru, 2015). Therefore, Games-Howell was used for checking differences across groups for time scarcity. Results from the ANOVA revealed that there were significant differences in the time scarcity score between all conditions, $F(2, 147) = 3.048$; $p = .050$. However, the scarcity condition ($M = 5.23$, $SD = .92$) did not show higher levels of time scarcity ($p = .069$) when compared with the control

condition ($M = 4.62$, $SD = 1.55$). Additionally, the scarcity condition ($M = 5.23$, $SD = .92$) did not show significantly higher levels of time scarcity ($p = .265$) compared to the social proof condition ($M = 4.93$, $SD = 1.05$). Therefore, the manipulation of time scarcity did not go as intended. Since the differences between control and scarcity were marginally significant ($p = .069$), a comparison was made between scarcity and control for the main experiment.

4.1.4 Brand Credibility

Besides the independent variables, the moderator of this study (brand credibility) was also tested. A t-test was used since there was only a comparison between two groups (low credibility and high credibility). Results indicated that the high credibility condition ($M = 4.80$, $SD = .71$) demonstrated significantly greater levels of brand credibility ($t(148) = -10.32$, $p < .0001$) when compared with the low credibility condition ($M = 3.52$, $SD = .81$) with equal variance assumed. The manipulation of brand credibility was therefore successful.

4.2 Hypotheses testing

4.2.1 Main effect from scarcity to persuasion knowledge and contesting

The multivariate general linear model revealed that scarcity did not have a significant effect on persuasion knowledge and contesting strategies Wilks' Lambda = 0.971, $F(5,88) = .437$, $p = 0.770$. When looking at the variables separately, these results remained. Persuasion knowledge was not significantly higher $F(1, 92) = .259$, $p = .612$ in the scarcity condition ($M = 4.44$, $SD = .55$) compared to the control condition ($M = 4.30$, $SD = .52$). Additionally, the total score of contesting showed no differences ($F(1, 92) = .014$, $p = .905$) between the control ($M = 3.64$, $SD = 1.08$) and the scarcity condition ($M = 3.64$, $SD = 1.00$). Analysis on subparts of persuasion knowledge and contesting strategies showed nonsignificant results and can be seen in Table 13. Therefore, hypothesis one, which expected a main effect from scarcity on persuasion knowledge was rejected.

Table 13*Scarcity on Persuasion knowledge and contesting subparts.*

	Control		Scarcity		Test between subjects effects ^a	
	Mean	SD	Mean	SD	F	P
PK (understanding intent)	4.66	.59	4.81	.83	1.357	.247
PK (scepticism)	4.14	.97	4.07	.75	.137	.712
Contesting (message)	3.71	1.19	3.82	1.23	.224	.637
Contesting (Source)	3.21	1.07	3.25	1.21	.080	.778
Contesting (Behaviour)	3.98	1.31	3.85	1.16	.211	.647

Note. A higher mean on all scores indicates more persuasion knowledge or more contesting strategies. Scores in this table represent the average scores of the low credibility and high credibility combined.

^a The degrees of freedom were the same as for the analyses of scarcity on the totals (1, 92).

4.2.2 Main effect from social proof on persuasion knowledge and contesting strategies.

The multivariate general linear model revealed that social proof did not have a significant effect on persuasion knowledge and contesting strategies Wilks' Lambda = .813, $F(5, 94) = 1.685$, $p = 0.146$. Persuasion knowledge was not significantly higher $F(1, 96) = 3.831$, $p = .053$ in the social proof condition ($M = 4.62$, $SD = .48$) compared to the control condition ($M = 4.40$, $SD = .52$). Additionally, the total score of contesting showed no differences ($F(1, 96) = .102$, $p = .751$) between the control ($M = 3.63$, $SD = 1.00$) and the social proof condition ($M = 3.68$, $SD = .86$). When looking at the subparts of persuasion knowledge and contesting strategies, these results remained the same (Table 14), except for persuasion knowledge understanding intent. Persuasion knowledge understanding the intent (column 1) showed significant differences ($F(1, 96) = 6.539$, $p = .012$) between social proof and control. Equal variance and normality could not be assumed for PK understanding intent (Appendix F). Therefore, a non-parametric test was also conducted (Appendix G). This test also yielded significant results ($U = 914$, $p = .027$), results were therefore not changed. However, it should be noted that understanding the intent

(PK) showed a very low reliability ($\alpha = .621$). Therefore, hypothesis two, which expected a main effect from social proof on persuasion knowledge and contesting strategies, was also rejected.

Table 14

Social proof on Persuasion knowledge and contesting subparts.

	Control		Social proof		Test between subjects effects ^a	
	Mean	SD	Mean	SD	F	P
PK (understanding intent)	4.66	.59	4.99	.79	6.539	.012
PK (scepticism)	4.14	.97	4.26	.87	.051	.822
Contesting (message)	3.71	1.19	3.88	.89	.345	.558
Contesting (Source)	3.22	1.01	3.21	.97	.300	.585
Contesting (Behaviour)	3.98	1.31	3.94	1.21	.612	.436

Note. A higher mean on all scores indicates more persuasion knowledge or more contesting strategies. Scores in this table represent the average scores of the low credibility and high credibility combined.

^a The degrees of freedom were the same as for the analyses of social proof on the totals (1, 96).

4.2.3 Brand credibility moderation

4.2.3.1 Brand credibility moderation scarcity

To test the hypothesis if brand credibility moderated the relationship from scarcity to resistance strategies, a moderation analysis was conducted using PROCESS macro (Hayes, 2021). 11.6% of the variance in contesting strategies was predicted by scarcity and brand credibility, $R^2 = .1160$, $F(3, 90) = 3.93$, $p = .011$. Scarcity was not a significant predictor of contesting strategies, $b = 0.27$, $t(94) = .411$, $p = .682$. Furthermore, brand credibility was a significant predictor of contesting strategies, $b = -.61$, $t(94) = -2.04$, $p = .044$. However, the interaction between credibility and scarcity predicting contesting strategies was found to be not statistically significant for contesting strategies, $b = -0.16$, $t(94) = -.41$, $p = .685$.

To test if brand credibility moderated the relationship from scarcity to persuasion knowledge a separate analysis was conducted in PROCESS macro (Hayes, 2021). 8.3% of the variance in persuasion knowledge was predicted by scarcity and brand credibility, $R^2 = .0829$, $F(3, 90) = 2.71$, $p = .0496$. However, scarcity ($b = 0.51$, $t(94) = 1.436$, $p = .1542$) and brand credibility ($b = -0.11$, $t(94) = -0.678$, $p = .499$) were both not significant predictors of persuasion knowledge. Additionally, the interaction between credibility and scarcity for predicting persuasion knowledge was not statistically significant $b = -0.30$, $t(94) = -1.39$, $p = .167$. Moderation was also tested for all the subparts of contesting (source derogation, contesting the message and contesting behaviour) and for persuasion knowledge (understanding the intent, scepticism) but moderation for separate cases was non-significant (see Appendix H).

4.2.3.2 Brand credibility moderation social proof

To test if brand credibility moderated the relationship from social proof to contesting strategies, another moderation analysis was performed using PROCESS macro (Hayes, 2021). Results revealed that 12.6% of the variance in contesting strategies was explained by social proof and brand credibility, $R^2 = .1206$, $F(3, 96) = 4.39$, $p = .0061$. Social proof was not a significant predictor of contesting strategies, $b = .02$, $t(100) = .0647$, $p = .949$. However, the level of credibility was a significant predictor of contesting strategies, $b = -.61$, $t(94) = -2.29$, $p = .024$. Furthermore, the interaction between credibility and social proof for predicting contesting strategies was found to be not statistically significant for contesting strategies, $b = -0.03$, $t(100) = -.17$, $p = .863$.

To test if brand credibility moderated the relationship from social proof to persuasion knowledge, another moderation analysis was performed using PROCESS macro (Hayes, 2021). In total, 6.4% of the variance in persuasion knowledge was explained by social proof and brand credibility, $R^2 = .0635$, $F(3, 96) = 2.17$, $p = .0967$. Social proof ($b = 0.13$, $t(100) = .83$, $p = .406$) and brand credibility ($b = -0.11$, $t(100) = -0.705$, $p = .4826$) were both not significant predictors of persuasion knowledge. Additionally, the interaction between credibility and scarcity for predicting persuasion knowledge was not statistically significant $b = -0.02$, $t(100) = -0.21$, $p = .830$. Moderation was also tested for all the subparts of contesting (source derogation, contesting the message and contesting behaviour) and for persuasion knowledge (understanding the intent, scepticism) but moderation for separate cases was not significant (see Appendix H). Therefore, hypothesis three, which expected brand credibility to moderate the relationship from scarcity and social proof to persuasion knowledge and contesting strategies was rejected.

4.2.4 Association between persuasion knowledge and contesting strategies.

To test hypothesis four, a correlation analysis was conducted. Results show that persuasion knowledge was positively correlated with contesting strategies ($r(150) = .386, p < .001$). Significant results were found for all subparts of contesting; source derogation ($r(150) = .334, p < .001$), contesting message ($r(150) = .337, p < .001$) and contesting behaviour ($r(150) = .331, p < .001$). However, when the correlation analysis was split up (Table 15) between the two subparts of persuasion knowledge (understanding intent and scepticism) the correlation strengthened to moderate near 0.5 (Dancey & Reidy, 1999) for persuasion knowledge scepticism (row 2), contesting source derogation (column 4), contesting behaviour (column 6) and the total score of contesting strategies (column 7). On the other hand, the significance of the correlations disappears for persuasion knowledge understanding intent (row 1) with all contesting strategies (columns 4 until 7). Since the correlations were significant between persuasion knowledge total (column 3) and contesting total score (row 7) hypothesis four was accepted.

Table 15

Correlation analysis persuasion knowledge and contesting strategies.

	1	2	3	4	5	6	7
1.PK understanding intent	-						
2.PK scepticism	-.151	-					
3.PK total	.590***	.709***	-				
4.Contesting source derogation	-.079	.478***	.334***	-			
5.Contesting message	.039	.379***	.337***	.581***	-		
6.Contesting behaviour	-.076	.472***	.331***	.685***	.588***	-	
7.Contesting total score	-.046	.513***	.386***	.870***	.832***	.888***	-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Pearson R was used as both measurements used an interval measurement level.

4.3 Additional results

During the analysis of all the hypotheses, it was noteworthy that persuasion knowledge and contesting scores were generally higher in the lower credibility score, so additional data analysis was conducted to explore what relationships could be discovered. Results revealed that the level of credibility had a significant effect on persuasion knowledge and contesting strategies Wilk's Lambda = .782, $F(5, 140) = 7.810$, $p < .001$. Resistance strategies were significantly higher $F(1, 144) = 20.075$, $p < 0.001$ in the low credibility conditions ($M = 3.97$, $SD = .92$) compared to the high credibility conditions ($M = 3.31$, $SD = .92$). Additionally, persuasion knowledge was significantly higher $F(1, 144) = 6.977$, $p = 0.009$ in the low credibility condition ($M = 4.62$, $SD = .57$) compared to the high credibility condition ($M = 4.37$, $SD = .44$). However, when looking at the separate subparts of persuasion knowledge and contesting (Table 16), lower brand credibility only increased scepticism (column 2) and not understanding of intent (column 1). Additionally, low credibility only led to contestation of behaviour and the source and not of the message itself (column 3).

Table 16

Credibility on all separate parts of persuasion knowledge and contesting

	Low credibility		High credibility		Test between subjects effects	
	Mean	SD	Mean	SD	F	P
PK (understanding intent)	4.83	.81	4.83	.68	0.111	.739
PK (scepticism)	4.41	.90	3.91	.74	12.357	.001
Contesting (message)	3.96	1.06	3.82	3.66	2.495	.116
Contesting (source)	3.61	1.06	2.83	0.94	22.741	.000
Contesting (behaviour)	4.40	1.12	3.44	1.12	27.131	.000

Note. A higher score indicated that there was a higher likelihood of persuasion knowledge activation or contesting behaviour. Scores in this table presented the average of low credibility (control, social proof, scarcity) against the average of high credibility (control, social proof, scarcity)

Lastly, an analysis was also conducted to assess the mediating role of persuasion knowledge between level of credibility and contesting strategy. The results (Table 17) revealed an indirect effect of credibility on contesting strategies through persuasion knowledge ($b = -.1489, t = 1.959$). Additionally, the direct results from credibility to contesting were again confirmed ($b = -.533, p = 0.001$). Therefore, a mediation was found but it was only a partial mediation.

Table 17

Mediation analysis persuasion knowledge summary

Relationship	Total effect	Direct effect	Indirect effect	Lower bound CI	Upper bound CI	t-statistic
Credibility → PK → Contesting	-.682 (0.000)	-.533 (0.000)	-.1489	-.325	-.030	1.959

4.4 Overview results

Table 18

Summary conclusion hypotheses

Hypothesis	Conclusion
H1: Scarcity will lead to a larger increase in persuasion knowledge and contesting strategies from consumers compared to no scarcity.	Rejected
H2: Social proof will lead to a larger increase in persuasion knowledge and contesting strategies from consumers compared to no social proof.	Rejected
H3: Brand credibility moderates the impact of persuasion knowledge and subsequent contesting strategies, whereby higher levels of brand credibility will lead to a reduction of persuasion knowledge and contesting strategies.	Rejected
H4: An increase in persuasion knowledge will lead to a contesting strategy from consumers.	Accepted

5. Discussion and conclusions

The objective of this study was to better understand resistance strategies in the form of persuasion knowledge and contesting strategies. After a thorough analysis and examination of scarcity, social proof, brand credibility, persuasion knowledge, and contesting strategies, this section presents a discussion of the findings. First, the conclusions of the experiment are discussed. Thereafter, the theoretical contributions and managerial implications are discussed. Finally, the last part of the study discusses the limitations of this research along with recommendations for future researchers.

5.1 Discussion results

Before each separate hypothesis is discussed, a short conclusion from the results section will be presented here. Results reveal that scarcity and social proof both do not lead to persuasion knowledge and contesting strategies. Furthermore, brand credibility does not moderate the relationship from scarcity and social proof to persuasion knowledge and contesting strategies. Instead, brand credibility itself is a significant predictor of some instances of contesting behaviour (only source derogation and contesting behaviour) and persuasion knowledge (only scepticism). Furthermore, persuasion knowledge partially mediates a relationship between brand credibility and contesting strategies. Lastly, persuasion knowledge and contesting strategies show statistically significant associations that become stronger when only the scepticism part of persuasion knowledge is included.

5.1.1 Effects of scarcity and social proof on persuasion knowledge and contesting strategies

Within this research, it was expected that the use of scarcity and social proof would lead to persuasion knowledge activation and contesting strategies due to feelings of manipulation based on research from Isaac and Grayson (2017). After conducting a thorough analysis results revealed that this was not the case.

To explain this difference, there are some differences that have to be considered between this study and the study by Isaac and Grayson (2017). The study from Isaac and Grayson (2017) had an older target group ($M = 33.7$) compared to this study, where the age range was 18 to 29. This is relevant because older consumers are more likely to understand marketers' ulterior motives and manipulative actions (Eisend & Tarrahi, 2021) and have a higher understanding of persuasive intent (Boerman et al., 2023). This occurs because of cognitive development and media exposure (Nelson et al., 2017). Individuals encounter or view

persuasion attempts that develop their persuasion knowledge (Friestad & Wright, 1994; Campbell & Kirmani, 2000). Therefore, the sample from Isaac and Grayson (2017) may have been more likely to show negative coping responses from persuasion attempts (Eisend & Tarrahi, 2021).

Another important difference between this study and the study from Isaac and Grayson (2017) was the country in which the study took place. This study was conducted in the Netherlands, while the study from Isaac and Grayson (2017) was conducted within the United States. Especially within the context of Cialdini's principles, culture affects how successful principles such as social proof are (Orji, 2016; Xiao et al., 2023) and could therefore also affect resistance. Furthermore, according to Eisend and Tarrahi (2022), different findings between studies that research persuasion knowledge across countries are frequently attributed to differences in educational systems. There may be variance in how much is taught to children about advertising, leading to different advertising literacy. These differences may also lead to differences in persuasion knowledge, as improvement in understanding the creator of the message, the selling intent, the target audience and the persuasive strategy improve persuasion knowledge (Nelson, 2015). Within America, advertising spending has always been very high (Eisend & Tarrahi, 2022), typically higher than European countries (such as the Netherlands). Therefore, the American school system puts more emphasis on advertising literacy through mandatory advertising literacy lectures (Media Literacy Now, 2024) compared to the Netherlands, where such lectures are not mandatory (European Commission, 2023). This could make Americans more likely to show resistance against persuasion when compared with the Netherlands, which could explain different results.

Differences between studies that research persuasion knowledge can also be caused by different measurements (Eisend & Tarrahi, 2022). Different measurements may lead to different results, which makes it hard to compare studies that research persuasion knowledge with each other unless they use the same measurement. In the study from Isaac and Grayson (2017), participants were given descriptions of twenty persuasion methods and asked to evaluate these and assign predetermined words (e.g., credible, fair, helpful, manipulative, improper, deceptive, unfair). This approach may enable participants to compare different techniques, potentially leaving room for social desirability biases (Juvan & Dolničar, 2016), as half of the words were considered positive while the other half were negative. Meanwhile, in this study, participants were only exposed to one sale technique, and a more realistic scenario was created through an online website experiment where persuasion knowledge was measured

on a Likert-scale with scales to mitigate such biases. Therefore, the different findings from this study compared to the study from Isaac and Grayson (2017) are most likely explained by differences in demographics of the participants, culture, educational system and different measurements that were used.

One last explanation that could help to explain the lack of results for scarcity may have to do with the text that was used. For scarcity, the text “Limited availability” was used, as this text was perceived as a form of time scarcity. However, this text could also be interpreted as a supply-related form of scarcity. This is relevant since supply related scarcity claims work best for hedonistic products (Ku et al., 2013) and experiences (Barton et al., 2022) such as vacations. Therefore, the type of scarcity claim may have perfectly aligned with the type of experience, which makes the persuasion attempt more likely to succeed and makes resistance less likely.

5.1.2 Brand Credibility

Within this research, it was expected that brand credibility would moderate the relationship of scarcity and social proof on persuasion knowledge and contesting strategies. It was hypothesized that low brand credibility would lead to an increase in persuasion knowledge and contesting strategies. On the other hand, high credibility was expected to reduce persuasion knowledge and contesting strategies. This was based on the idea that the credibility of a source (e.g., the brand) can influence the perceived credibility of a tactic (e.g., persuasion tactic) (Campbell 1999; Goldberg & Hartwick 1990; Isaac & Grayson, 2017; Srivastava & Chakravarti 2009) and reduce feelings of manipulative intent (Isaac & Grayson, 2017; Kirmani & Zhu, 2007).

The results revealed that brand credibility did not moderate the effects of scarcity and social proof on persuasion knowledge and contesting strategies. Instead, there was an effect from brand credibility on persuasion knowledge (for scepticism) and contesting (contesting the source and behaviour). This goes against what was expected, as authors such as Fransen et al. (2015) put a heavy focus on elements of the message (e.g., deceptive tactics, delayed sponsor identification, or incomplete comparisons) leading to contesting strategies. Which suggests that when researchers aim to explain resistance strategies, they should not only pay attention to the characteristics of the message, but also to the source of a message.

Although the effect from brand credibility on persuasion knowledge and contesting strategies. is not directly found in the literature, previous research has found that in a service

setting, brand credibility can lead to increased levels of perceived quality, perceived value for money, higher levels of purchase intention and decreased levels of perceived risk (Baek & King, 2011). This suggests that higher levels of brand credibility can lead to more successful persuasion attempts (less resistance). Furthermore, although brand credibility did not play the moderating role that it was expected to, the process of why this occurs remains valid. The findings emphasize that credibility and scepticism operate on opposite ends of the same continuum (Isaac and Grayson, 2017), as discussed within the theoretical framework. However, feelings of manipulative intent were likely not triggered by the message itself but by the description of the company depicting low credibility.

5.1.3 Association between persuasion knowledge and contesting strategies.

In this study, it was hypothesized that increased levels of persuasion knowledge led to more resistance strategies. The results revealed significant correlations between persuasion knowledge and contesting strategies. The correlations were strongest when only the scepticism part of persuasion knowledge was included (understanding the intent was excluded). These results are in line with the majority of persuasion knowledge research that suggests that the activation of persuasion knowledge most often has negative outcomes (Eisend & Tarrahi, 2021). Within this study, correlations were strongest when looking at the scepticism part of persuasion knowledge. This finding helps to make sense of previous research when the activation of persuasion knowledge led to positive results. For instance, a study from Kirmani and Campbell (2004) found that when targets (consumers) engage with an agent (a salesperson) in a goal-directed situation, persuasion knowledge is activated, but this does not lead to negative outcomes. This is likely due to consumers being aware that they are being persuaded and what this entails (understanding the intent) but not showing scepticism as they knowingly went into a store with a specific goal.

It is important to still keep in mind that persuasion knowledge does not always lead to negative results (Eisend & Tarrahi, 2021; Isaac & Grayson, 2017; Kirmani & Campbell, 2004), as even Friestad and Wright (1994) suggested that a coping response as a result of persuasion knowledge is a neutral term that can denote both positive and negative outcomes. However, when persuasion knowledge is combined with scepticism, negative outcomes (Isaac & Grayson, 2017), such as contesting strategies, are likely to occur.

5.2 Implications

5.2.1 *Theoretical contributions*

This study found that scarcity and social proof did not lead to persuasion knowledge and contesting strategies. Demonstrating findings of scarcity and social proof on resistance against persuasion may not always be generalizable across different contexts. The findings did show associations between persuasion knowledge and contesting strategies, which became stronger when only persuasion knowledge scepticism was included and understanding the intent was left out. This implies that scepticism is very closely related to contesting strategies. Suggesting that it is crucial to reduce feelings of scepticism to avoid contesting strategies. Although this finding is not directly reported in the literature, there has been research that has demonstrated that reduced scepticism can lead to more successful persuasion attempts (Pomeroy & Johnson, 2009). This study adds to this by suggesting the reverse: scepticism can lead to more resistance against persuasion (in the case of contesting strategies). This finding may be important for areas where resistance against persuasion is a desirable outcome, such as preventing scams and conspiracy theories. Future research should find out how scepticism can be bolstered to further enhance the theoretical understanding of resistance against persuasion.

This study found that brand credibility can lead to persuasion knowledge and contesting strategies. This finding adds to existing knowledge, as existing research mainly shows evidence of a relationship from resistance to persuasion and persuasion knowledge to lower evaluations of brand credibility (Eisend et al., 2020). This study adds to these studies by showing that low brand credibility can also lead to resistance against persuasion (contesting strategies) and persuasion knowledge activation (Eisend et al., 2020).

Another finding that can advance the theoretical understanding of resistance against persuasion has to do with the conclusion that increases in persuasion knowledge and contesting strategies were caused by the brand but irrespective of whether or not the principles of Cialdini were applied or not. This finding goes against existing research on resistance to persuasion that mainly focuses on elements of the message leading to feelings of manipulation and subsequent contesting strategies (Fransen et al., 2015). Therefore, this study adds to the theoretical understanding of resistance against persuasion by showing that the credibility of a brand is important when looking at contesting strategies. This seems logical, as older research on persuasion demonstrated that source credibility (in the form of a person) is very important in orchestrating successful persuasion attempts (Pornpitakpan, 2004). Not only source credibility but also brand trust has been shown to generate more consumer commitment (Delgado-

Ballester & Munuera-Alemán, 2001), indicating a more successful persuasion attempt. Although trustworthiness is not the same as brand credibility, it is one of the two fundamental pillars that make up brand credibility (Erdem & Swait, 2004). The other pillar of brand credibility is expertise (Erdem & Swait, 2004). Expertise itself has also been shown to lead to more successful persuasion attempts within an online context (less resistance) (Wu et al., 2021). This suggests that previous research has found evidence that brand credibility is important for the persuasiveness of a message. However, this study provides evidence that the reverse is also true: low brand credibility can lead to less successful persuasion attempts (increased persuasion knowledge scepticism) and more contesting strategies (source and behavioural contesting) within an online context.

5.2.2 Managerial implications

The findings of this study assert that when scarcity and social proof are used on a website through claims such as limited availability or best booking of the year according to travellers it does not lead to persuasion knowledge activation and contesting strategies. This means that, from an efficiency viewpoint, travel organizations do not have to change how they incorporate these principles. However, from a legal viewpoint, companies should keep in mind that they are allowed to tempt consumers but not mislead them (ACM, 2023). Companies should only make claims about a scarce product if that product is scarce and should only report about the popularity of a product when it is popular (ACM, 2023).

This is important not only from a legal perspective but also from an ethical perspective and a business perspective. Since the principles of Cialdini work in such an unconscious way, there is a risk that profiteers who know the principles of Cialdini work take advantage of consumers to make them buy things they do not need (Cialdini, 2009). Especially in the case of expensive products, consumers can afterwards face dissonance (Hasan, 2012). Potentially leading to dissatisfied consumers, losing loyal consumers and negative word of mouth (Bolia et al., 2016). Given the emphasis in marketing on establishing enduring relationships with customers that go beyond a single transaction (Verhage, 2013), businesses ought to consider and reflect if they only tempt consumers and not mislead them. This can be achieved through conducting internal audits of marketing materials to ensure that they do not contain misleading information. Furthermore, companies should consider incorporating more mechanisms to gather feedback on marketing communication (e.g., monitor customer complaints on social media, surveys or focus groups).

The findings of this study underscore the significance of brand credibility for online retailers to minimize resistance against persuasion. Establishing brand credibility involves demonstrating expertise (Rhine & Severance, 1970) and trustworthiness (Mills & Jellison, 1967). This can be accomplished by ensuring a clear brand message (Erdem & Swait, 1998), where the brand is clear about what its focus is and aligns this with its marketing mix decisions (Sweeney & Swait, 2008). Employees should be made aware of this brand message through internal trainings to ensure consistency in communication. There should be a clear link between the culture of a company and brand positioning (Sweeney & Swait, 2008). Furthermore, brand credibility can be enhanced over time through strategic investments such as advertising, logos, sponsorships and demonstrating socially responsible actions (Erdem & Swait, 1998). Actions that could potentially diminish brand credibility, should be attempted to be mitigated through tactical actions such as discounts, apologies or free small products. Ultimately, companies must recognize that constructing a solid foundation of brand credibility demands a long-term perspective, which requires companies to stay congruent with their promises over time.

5.3 Research limitations and future research

Just like any research, this study had some limitations that will shortly be discussed. The first limitation to consider is that the survey was open from December 19 to January 22. This timing could affect consumer behaviour as this time period had an overlap with Christmas and the New Year. According to Hastings and Washington (2010), consumer behaviour may vary during this time, potentially affecting the survey's results.

Another limitation relates to the sampling method. This study primarily targeted students, which might have introduced a sampling bias of students. Students were an important part of the target group as this study aimed for homogeneity, but the upper range of 18-29 years old may have been underrepresented in this study. This is important since older individuals typically have higher persuasion knowledge (Erasmus et al., 2015). Future research should consider older participants to see if the results are the same for older target groups.

Additionally, the stimulus of this study had some constraints. The stimulus of scarcity and social proof were presented separately, results indicated that both scarcity and social proof conditions were perceived as high in scarcity and social proof. This may be due to the expectation that if a hotel is very popular, consumers expect that the room will be sold out soon, as hotels do not have infinite spots. Alternatively, since scarcity and social proof are often used often by travel organizations (Halbesma, 2017), consumers could also be used to seeing

scarcity and social proof cues and have an expectation that their desired vacation will be scarce and popular. This idea seems plausible since the control condition also scored fairly high on social proof ($M = 4.01$) and scarcity ($M = 3.93$) on a 7-point Likert scale. Repeated exposure to the same scarcity cues has been shown to enhance persuasiveness (Barton et al., 2022) and therefore make resistance less likely. Therefore, the lack of resistance and persuasion knowledge may be explained by the familiarity consumers have developed towards these instances of scarcity and social proof, as the scarcity texts were taken from popular travel companies in the Netherlands. Future research can learn from this by researching different cues that are not used as frequently. For instance, for time scarcity, a timer could be used, as this emphasizes that a product is on sale for a limited amount of time which could be viewed as manipulative (Isaac & Grayson, 2017) and a restriction of freedom because it limits the time consumers have to make a decision which may lead to contesting strategies (Fransen et al., 2015). Additionally, the study that led to the hypothesis of scarcity leading to PK and contesting strategies (Isaac & Grayson, 2017) noted a repetition of a scarcity cue, an element absent within this study. Future research could implement the repetition element through a timer and see if this leads to different results.

Another limitation related to the stimulus of this study had to do with the design of the stimulus. The stimulus in this study was limited to pictures rather than an entire website, as the latter was not visible within Qualtrics. This meant that the scarcity and social proof cues were limited to a small text. This text was seen by respondents, as all respondents that were included in the data analysis correctly answered the control question which asked what text was shown. However, the question remains whether a picture of a website with a small text rather than a whole website can imitate real emotions caused by scarcity, such as fear of missing out (Khetarpal & Singh, 2023). It is plausible that participants in the study may not have been sufficiently interested or engaged with the vacation that was presented or did not perceive the website materials as realistic due it being rather limited. Especially engagement is an important factor that contributes to experiencing fear of missing out (Agarwal & Mewafarosh, 2021). Igniting emotions such as fear of missing out may not be vital for persuasion knowledge, as this is mainly about knowledge rather than emotions (Friestad & Wright, 1994). However, coping responses (e.g., contesting or avoidance) should be viewed broader, as they can also be behavioural and emotional besides cognitive (Eisend & Tarrahi, 2021). Therefore, future research should consider presenting more realistic materials to participants (e.g. creating a larger picture of a website for only desktop users).

The last limitation of this study had to do with the measurement scales that were used. The operationalization of persuasion knowledge was not perfectly reliable, as one part of persuasion knowledge (understanding the intent) showed low reliability ($\alpha = .621$). The selection of an appropriate scale posed challenges, given that the majority of persuasion knowledge scales focus on measuring persuasion knowledge after a video (Boerman et al., 2018). There was a lack of scales that measured persuasion knowledge after viewing a banner on a website. Future research could consider a different measurement scale for manipulative intent (Campbell, 1995) and pre-test their scale to ensure reliability. Alternatively, future research could develop new scales that will measure concepts such as persuasion knowledge (and contesting) in a more reliable way. Developing new scales will make it easier for researchers in the future to compare results from persuasion knowledge studies with each other. Currently, this is difficult because of the different measurements that are used in each study (Eisend & Tarrahi, 2022). Developing scales that measure persuasion knowledge is very important because previous research (Eisend & Tarrahi, 2021) has explained that persuasion knowledge is a factor that can partially explain the reduced effectiveness of advertising (Dahlén & Rosengren, 2016), making it necessary and important for more research to be conducted on this topic.

Lastly, an intriguing question for future research is whether persuasion knowledge varies across countries due to culture (Eisend & Tarrahi, 2022). There are current studies that show that persuasion appeals work better in some cultures than others (Aaker & Maheswaran, 1997; Han & Shavitt, 1994; Orji, 2016). However, research on what effect culture has on resistance to persuasion seems to be scarce. Future research could compare motivations to resist persuasion (e.g., freedom threats, concerns of deception or reluctance to change) (Fransen et al., 2015) and see if these vary across different cultures using the Hofstede dimensions (Hofstede, 1980). This may help explain the different findings between this study and the study from Isaac and Grayson (2017).

References

- Aaker, J., & Maheswaran, D. (1997). The effect of cultural orientation on persuasion. *Journal of Consumer Research*, 24(3), 315–328. <https://doi.org/10.1086/209513>
- ACM. (2023, December 13). *Checklist online verkoop*. ACM.nl. Retrieved March 1, 2024, from <https://www.acm.nl/nl/verkoop-aan-consumenten/checklist-online-verkoop>
- Agag, G., & El-Masry, A. (2016). Why do consumers trust online travel websites? Drivers and outcomes of consumer trust toward online travel websites. *Journal of Travel Research*, 56(3), 347–369. <https://doi.org/10.1177/0047287516643185>
- Agarwal, S., & Mewafarosh, R. (2021). Linkage of social media engagement with FOMO and subjective well being. *Journal of Content, Community & Communication*, 13(7), 46–57.
- Aggarwal, P., & Vaidyanathan, R. (2003). Use it or lose it: Purchase acceleration effects of time-limited promotions. *Journal of Consumer Behaviour*, 2(4), 393–403. <https://doi.org/10.1002/cb.116>
- Aguirre-Rodriguez, A. (2013). The effect of consumer persuasion knowledge on scarcity appeal persuasiveness. *Journal of Advertising*, 42(4), 371–379. <https://doi.org/10.1080/00913367.2013.803186>
- Ang, D., Gerrath, M. H. E. E., & Liu, Y. (2021). How scarcity and thinking styles boost referral effectiveness. *Psychology & Marketing*, 38(11), 1928–1941. <https://doi.org/10.1002/mar.21557>
- Armstrong, R. A. (2014). When to use the Bonferroni correction. *Ophthalmic and Physiological Optics*, 34(5), 502–508.
- Ateş, C., Kaymaz, Ö., Kale, E. H., & Tekindal, M. A. (2019). Comparison of test statistics of nonnormal and unbalanced samples for multivariate analysis of variance in terms of type-I error rates. *Computational and Mathematical Methods in Medicine*, 2019, 1–8. <https://doi.org/10.1155/2019/2173638>

- Ayaz, S., & Shah, S. a. M. (2022). Tailoring reciprocity and scarcity in targeted ads to the regulatory focus of consumers: Mediating role of persuasion knowledge. *International Journal of Business and Management Sciences*, 3(3), 64–86.
<https://ijbms.org/index.php/ijbms/article/view/237>
- Baek, T. H., & King, K. W. (2011). Exploring the consequences of brand credibility in services. *Journal of Services Marketing*, 25(4), 260–272.
<https://doi.org/10.1108/08876041111143096>
- Barton, B., Zlatevska, N., & Oppewal, H. (2022). Scarcity tactics in marketing: A meta-analysis of product scarcity effects on consumer purchase intentions. *Journal of Retailing*, 98(4), 741–758. <https://doi.org/10.1016/j.jretai.2022.06.003>
- Blattberg, R. C., Briesch, R., & Fox, E. J. (1995). How promotions work. *Marketing Science*, 14(3), G122–G132. <https://doi.org/10.1287/mksc.14.3.g122>
- Bleier, A., & Eisenbeiss, M. (2015). The importance of trust for personalized online advertising. *Journal of Retailing*, 91(3), 390–409.
<https://doi.org/10.1016/j.jretai.2015.04.001>
- Boerman, S. C., Van Reijmersdal, E. A., & Rozendaal, E. (2023). A closer investigation of dispositional persuasion knowledge of sponsored content: Exploring determinants and clusters. *Journal of Marketing Communications*.
- Boerman, S. C., Van Reijmersdal, E. A., Rozendaal, E., & Dima, A. L. (2018). Development of the persuasion knowledge scales of sponsored content (PKS-SC). *International Journal of Advertising*, 37(5), 671–697. <https://doi.org/10.1080/02650487.2018.1470485>
- Bolia, B., Jha, S., & Jha, M. K. (2016). Cognitive dissonance: A review of causes and marketing implications. *Researchers World*, VII(2), 63–76.
<https://doi.org/10.18843/rwjasc/v7i2/06>
- Brehm, J. W. (1966). *A theory of psychological reactance*. Academic Press.

- Brehm, S. S. (1981). Psychological reactance and the attractiveness of unobtainable objects: Sex differences in children's responses to an elimination of freedom. *Sex Roles, 7*(9), 937–949. <https://doi.org/10.1007/bf00290976>
- Breves, L. P., Liebers, N., Abt, M., & Kunze, A. (2019). The perceived fit between instagram influencers and the endorsed brand. *Journal of Advertising Research, 59*(4), 440–454. <https://doi.org/10.2501/jar-2019-030>
- Broyles, S. A., Schumann, D. W., & Leingpibul, T. (2009). Examining brand equity antecedent/consequence relationships. *The Journal of Marketing Theory and Practice, 17*(2), 145–162. <https://doi.org/10.2753/mtp1069-6679170204>
- Burkley, E. (2008). The role of self-control in resistance to persuasion. *Personality and Social Psychology Bulletin, 34*(3), 419–431. <https://doi.org/10.1177/0146167207310458>
- Campbell, M. (1995). When attention-getting advertising tactics elicit consumer inferences of manipulative intent: The importance of balancing benefits and investments. *Journal of Consumer Psychology, 4*(3), 225–254. https://doi.org/10.1207/s15327663jcp0403_02
- Campbell, M. (1999). Perceptions of price unfairness: Antecedents and consequences. *Journal of Marketing Research, 36*(2), 187–199. <https://doi.org/10.1177/002224379903600204>
- Campbell, M. C., & Kirmani, A. (2008). I know what you're doing and why you're doing it. The use of persuasion knowledge model in consumer research. In C.P. Haugtvedt, P. M. Herr, & F. R. Kardes (Eds.). *Handbook of Consumer Psychology, 549–573*.
- Campbell, M. L., & Kirmani, A. (2000). Consumers' use of persuasion knowledge: The effects of accessibility and cognitive capacity on perceptions of an influence agent. *Journal of Consumer Research, 27*(1), 69–83. <https://doi.org/10.1086/314309>
- Campbell, M. L., Mohr, G. S., & Verlegh, P. W. (2013). Can disclosures lead consumers to resist covert persuasion? The important roles of disclosure timing and type of response.

- Journal of Consumer Psychology*, 23(4), 483–495.
<https://doi.org/10.1016/j.jcps.2012.10.012>
- Castro, I. A., Morales, A. C., & Nowlis, S. M. (2013). The influence of disorganized shelf displays and limited product quantity on consumer purchase. *Journal of Marketing*, 77(4), 118–133. <https://doi.org/10.1509/jm.11.0495>
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, 39(5), 752–766. <https://doi.org/10.1037/0022-3514.39.5.752>
- Chaiken, S., & Trope, Y. (1999). *Dual-process theories in social psychology*. Guilford Press.
- Cialdini, R. (2009). *Invloed: De zes geheimen van het overtuigen* (5th ed.). Academic Service.
- Cialdini, R. B. (2016). *Pre-Suasion: A revolutionary way to influence and persuade*.
<https://psycnet.apa.org/record/2016-45908-000>
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: compliance and conformity. *Annual Review of Psychology*, 55(1), 591–621.
<https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Coulter, K. S., & Roggeveen, A. L. (2012). Deal or no deal?: How number of buyers, purchase limit, and time-to-expiration impact purchase decisions on group buying websites. *Journal of Research in Interactive Marketing*, 6(2), 78–95.
<https://doi.org/10.1108/17505931211265408>
- Dahlén, M., & Rosengren, S. (2016). If advertising won't die, what will it be? Toward a working definition of advertising. *Journal of Advertising*, 45(3), 334–345.
<https://doi.org/10.1080/00913367.2016.1172387>
- Dancey, C. P., & Reidy, J. (1999). *Statistics without maths for psychology*.
<http://ci.nii.ac.jp/ncid/BB17696782>

- Darke, P. R., & Ritchie, R. (2007). The defensive consumer: Advertising deception, defensive processing, and distrust. *Journal of Marketing Research*, *44*(1), 114–127.
<https://doi.org/10.1509/jmkr.44.1.114>
- Delgado-Ballester, E., & Munuera-Alemán, J. L. (2001). Brand trust in the context of consumer loyalty. *European Journal of Marketing*, *35*(11/12), 1238–1258.
<https://doi.org/10.1108/eum0000000006475>
- Eisend, M., & Tarrahi, F. (2016). The effectiveness of advertising: A meta-meta-analysis of advertising inputs and outcomes. *Journal of Advertising*, *45*(4), 519–531.
<https://doi.org/10.1080/00913367.2016.1185981>
- Eisend, M., & Tarrahi, F. (2021). Persuasion knowledge in the marketplace: A meta-analysis. *Journal of Consumer Psychology*, *32*(1), 3–22. <https://doi.org/10.1002/jcpy.1258>
- Eisend, M., & Tarrahi, F. (2022). How marketer actions influence persuasion knowledge: Meta-analytic evidence of a nonlinear relationship. *Journal of Public Policy & Marketing*, *41*(2), 107–123. <https://doi.org/10.1177/07439156221076166>
- Eisend, M., Van Reijmersdal, E. A., Boerman, S. C., & Tarrahi, F. (2020). A meta-analysis of the effects of disclosing sponsored content. *Journal of Advertising*, *49*(3), 344–366.
<https://doi.org/10.1080/00913367.2020.1765909>
- Ellis, B. H. (1992). The effects of uncertainty and source credibility on attitudes about organizational change. *Management Communication Quarterly*, *6*(1), 34–57.
<https://doi.org/10.1177/0893318992006001002>
- Erasmus, A. C., Donogue, S., & Fletcher, L. (2015). Proposing persuasion knowledge as the antecedent of consumers' self-confidence during a complex purchase decision. *Journal of Marketing Management*, *3*(2), 27–38.
- Erdem, T., & Swait, J. (1998). Brand equity as a signaling phenomenon. *Journal of Consumer Psychology*, *7*(2), 131–157. https://doi.org/10.1207/s15327663jcp0702_02

- Erdem, T., & Swait, J. (2004). Brand credibility, brand consideration, and choice. *Journal of Consumer Research*, *31*(1), 191–198. <https://doi.org/10.1086/383434>
- European Commission. (2023, November 23). *6.8 Media literacy and safe use of new media*. Retrieved April 18, 2024, from <https://national-policies.eacea.ec.europa.eu/youthwiki/chapters/netherlands/68-media-literacy-and-safe-use-of-new-media>
- Evans, N. R., & Park, D. (2015). Rethinking the persuasion knowledge model: Schematic antecedents and associative outcomes of persuasion knowledge activation for covert advertising. *Journal of Current Issues and Research in Advertising*, *36*(2), 157–176. <https://doi.org/10.1080/10641734.2015.1023873>
- Fenko, A., Keizer, T., & Pruyn, A. (2017). Do social proof and scarcity work in the online context? *16th International Conferences on Research in Advertising*.
- Fennis, B. M., Janssen, L., & Vohs, K. D. (2009). Acts of benevolence: A limited-resource account of compliance with charitable requests. *Journal of Consumer Research*, *35*(6), 906–924. <https://doi.org/10.1086/593291>
- Fennis, B. M., & Stroebe, W. (2015). *The psychology of advertising*. Psychology Press.
- Fogg, B. J. (1998). Persuasive computers. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. <https://doi.org/10.1145/274644.274677>
- Fransen, M. L., Smit, E. G., & Verlegh, P. W. (2015). Strategies and motives for resistance to persuasion: an integrative framework. *Frontiers in Psychology*, *6*. <https://doi.org/10.3389/fpsyg.2015.01201>
- Fransen, M. L., Verlegh, P. W., Kirmani, A., & Smit, E. G. (2015). A typology of consumer strategies for resisting advertising, and a review of mechanisms for countering them. *International Journal of Advertising*, *34*(1), 6–16. <https://doi.org/10.1080/02650487.2014.995284>

- Friedrich, T., & Figl, K. (2018). Consumers' perceptions of different scarcity cues on e-commerce websites. *International Conference on Information Systems*.
<https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1159&context=icis2018>
- Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, 21(1), 1.
<https://doi.org/10.1086/209380>
- Friestad, M., & Wright, P. (1999). Everyday persuasion knowledge. *Psychology & Marketing*, 16(2), 185–194. [https://doi.org/10.1002/\(sici\)1520-6793\(199903\)16:2](https://doi.org/10.1002/(sici)1520-6793(199903)16:2)
- Garretson, J. A., & Burton, S. (2003). Highly coupon and sale prone consumer: benefits beyond price savings. *Journal of Advertising Research*, 43(2), 162–172.
<https://doi.org/10.2501/jar-43-2-162-172>
- Gillespie, B., Joireman, J., & Muehling, D. D. (2012). The moderating effect of ego depletion on viewer brand recognition and brand attitudes following exposure to subtle versus blatant product placements in television programs. *Journal of Advertising*, 41(2), 55–66.
<https://doi.org/10.2753/joa0091-3367410204>
- Godlewski, G., & Zalech, M. (2022). Determinants of paying attention to the logos of online travel agencies. *Journal of Vacation Marketing*, 29(4), 584–601.
<https://doi.org/10.1177/13567667221109271>
- Goldberg, M. E., & Hartwick, J. (1990). The effects of advertiser reputation and extremity of advertising claim on advertising effectiveness. *Journal of Consumer Research*, 17(2), 172. <https://doi.org/10.1086/208547>
- Gupta, S., & Gentry, J. W. (2015). Construction of gender roles in perceived scarce environments - Maintaining masculinity when shopping for fast fashion apparel. *Journal of Consumer Behaviour*, 15(3), 251–260. <https://doi.org/10.1002/cb.1565>

- Haan, P., & Berkey, C. (2002). A study of the believability of the forms of puffery. *Journal of Marketing Communications*, 8(4), 243–256.
<https://doi.org/10.1080/13527260210162282>
- Halbesma, C. (2017). Persuasion techniques used by successful online shops. *Master Thesis University of Twente*.
- Han, S. P., & Shavitt, S. (1994). Persuasion and culture: Advertising appeals in individualistic and collectivistic societies. *Journal of Experimental Social Psychology*, 30(4), 326–350.
<https://doi.org/10.1006/jesp.1994.1016>
- Hanzaee, K. H., & Taghipourian, M. J. (2012). The effects of brand credibility and prestige on consumers purchase intention in low and high product involvement. *Journal of Basic and Applied Scientific Research*.
[http://textroad.com/pdf/JBASR/J.%20Basic.%20Appl.%20Sci.%20Res.,%202\(2\)1281-1291,%202012.pdf](http://textroad.com/pdf/JBASR/J.%20Basic.%20Appl.%20Sci.%20Res.,%202(2)1281-1291,%202012.pdf)
- Hasan, U. (2012). Cognitive dissonance and its impact on consumer buying behaviour. *IOSR Journal of Business and Management*, 1(4), 7–12. <https://doi.org/10.9790/487x-0140712>
- Hastings, J. S., & Washington, E. (2010). The first of the month effect: consumer behavior and store responses. *American Economic Journal: Economic Policy*, 2(2), 142–162.
<https://doi.org/10.1257/pol.2.2.142>
- Hayes, A. F. (2021). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). Guilford Press.
- Herlaar, V. (2020). Does personality impact resisting persuasion? *Master Thesis Tilburg University*.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. SAGE Publications, Incorporated.

- Hoyer, W. D. (1984). An examination of consumer decision making for a common repeat purchase product. *Journal of Consumer Research*, *11*(3), 822.
<https://doi.org/10.1086/209017>
- Huang, H., Liu, S. Q., Kandampully, J., & Bujisic, M. (2020). Consumer responses to scarcity appeals in online booking. *Annals of Tourism Research*, *80*, 102800.
<https://doi.org/10.1016/j.annals.2019.102800>
- Huang, J., Zeng, Y., & Wei, F. (2011). Consumer response to online time-limited promotion: The moderating role of consumer involvement and product familiarity. *Journal of Chinese Marketing*, *4*(2), 53–60.
- Huber, F., Vollhardt, K., Matthes, I., & Vogel, J. (2010). Brand misconduct: Consequences on consumer–brand relationships. *Journal of Business Research*, *63*(11), 1113–1120.
<https://doi.org/10.1016/j.jbusres.2009.10.006>
- Hudders, L., De Pauw, P., Cauberghe, V., Panic, K., Zarouali, B., & Rozendaal, E. (2017). Shedding new light on how advertising literacy can affect children’s processing of embedded advertising formats: A future research agenda. *Journal of Advertising*, *46*(2), 333–349. <https://doi.org/10.1080/00913367.2016.1269303>
- Hurwitz, S. A., Miron, M. S., & Johnson, B. T. (1992). Source credibility and the language of expert testimony. *Journal of Applied Social Psychology*, *22*(24), 1909–1939.
<https://doi.org/10.1111/j.1559-1816.1992.tb01530.x>
- Isaac, M. S., & Grayson, K. (2017). Beyond skepticism: Can accessing persuasion knowledge bolster credibility? *Journal of Consumer Research*, *43*(6), 895–912.
<https://doi.org/10.1093/jcr/ucw063>
- Janssen, L. (2010). Self-regulation and social influence: a limited-resource account of resisting and yielding to persuasion. [Doctoral Dissertation, University of Twente].

https://psyblog.nl/wp-content/uploads/2011/04/Binnenwerk_proefschrift_Loes_Janssen-08-02_final-version.pdf

Janssen, L., Fennis, B. M., Pruyn, A. T., & Vohs, K. D. (2008). The path of least resistance: Regulatory resource depletion and the effectiveness of social influence techniques. *Journal of Business Research*, *61*(10), 1041–1045.

<https://doi.org/10.1016/j.jbusres.2007.09.013>

Jeong, H. J., & Kwon, K. (2012). The effectiveness of two online persuasion claims: Limited product availability and product popularity. *Journal of Promotion Management*, *18*(1), 83–99. <https://doi.org/10.1080/10496491.2012.646221>

Johar, J. S., & Sirgy, M. J. (1991). Value-expressive versus utilitarian advertising appeals: When and why to use which appeal. *Journal of Advertising*, *20*(3), 23–33.

<https://doi.org/10.1080/00913367.1991.10673345>

Jung, J. M., & Kellaris, J. J. (2004). Cross-national differences in proneness to scarcity effects: The moderating roles of familiarity, uncertainty avoidance, and need for cognitive closure. *Psychology & Marketing*, *21*(9), 739–753. <https://doi.org/10.1002/mar.20027>

Juvan, E., & Dolničar, S. (2016). Measuring environmentally sustainable tourist behaviour. *Annals of Tourism Research*, *59*, 30–44. <https://doi.org/10.1016/j.annals.2016.03.006>

Kahneman, D., Slovic, S. P., Slovic, P., Tversky, A., & Press, C. U. (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge University Press.

Kampik, T., Nieves, J. C., & Lindgren, H. (2018). Coercion and deception in persuasive technologies. In *International Joint Conference on Artificial Intelligence* (pp. 38–49).

<http://ceur-ws.org/Vol-2154/paper4.pdf>

Kees, J., Burton, S., & Tangari, A. H. (2010). The impact of regulatory focus, temporal orientation, and fit on consumer responses to health-related advertising. *Journal of Advertising*, *39*(1), 19–34. <https://doi.org/10.2753/joa0091-3367390102>

- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of Marketing*, 57(1), 1–22.
- Kelman, H. C., & Hovland, C. I. (1953). “Reinstatement” of the communicator in delayed measurement of opinion change. *The Journal of Abnormal and Social Psychology*, 48(3), 327–335. <https://doi.org/10.1037/h0061861>
- Khetarpal, M., & Singh, S. (2023). “Limited time offer”: Impact of time scarcity messages on consumer’s impulse purchase. *Journal of Promotion Management*, 1–20. <https://doi.org/10.1080/10496491.2023.2253228>
- Kirmani, A., & Campbell, M. (2004). Goal seeker and persuasion sentry: How consumer targets respond to interpersonal marketing persuasion. *Journal of Consumer Research*, 31(3), 573–582. <https://doi.org/10.1086/425092>
- Kirmani, A., & Zhu, R. (2007). Vigilant against manipulation: The effect of regulatory focus on the use of persuasion knowledge. *Journal of Marketing Research*, 44(4), 688–701. <https://doi.org/10.1509/jmkr.44.4.688>
- Knowles, E. S., & Linn, J. A. (2004). *Resistance and persuasion*. Psychology Press.
- Ku, H., Kuo, C., & Kuo, T. (2012). The effect of scarcity on the purchase intentions of prevention and promotion motivated consumers. *Psychology & Marketing*, 29(8), 541–548. <https://doi.org/10.1002/mar.20541>
- Ku, H., Kuo, C., Yang, Y., & Chung, T. (2013). Decision-contextual and individual influences on scarcity effects. *European Journal of Marketing*, 47(8), 1314–1332. <https://doi.org/10.1108/03090561311324345>
- Laran, J., Dalton, A. N., & Andrade, E. B. (2011). The curious case of behavioral backlash: Why brands produce priming effects and slogans produce reverse priming effects. *Journal of Consumer Research*, 37(6), 999–1014. <https://doi.org/10.1086/656577>

- Lee, Y. L., & Song, S. (2010). An empirical investigation of electronic word-of-mouth: Informational motive and corporate response strategy. *Computers in Human Behavior*, 26(5), 1073–1080. <https://doi.org/10.1016/j.chb.2010.03.009>
- Loorbach, T. (2023, October 25). *Cialdini: 7 Beïnvloedingsprincipes in de praktijk*. IMU BV. Retrieved April 11, 2024, from <https://imu.nl/internet-marketing-kennisbank/neuromarketing/cialdini-principes/>
- Main, K., Dahl, D. W., & Darke, P. R. (2007). Deliberative and automatic bases of suspicion: empirical evidence of the sinister attribution error. *Journal of Consumer Psychology*, 17(1), 59–69. https://doi.org/10.1207/s15327663jcp1701_9
- McGuire, W. (1964). Some contemporary approaches. In *Advances in Experimental Social Psychology* (pp. 191–229). Elsevier BV. [https://doi.org/10.1016/s0065-2601\(08\)60052-0](https://doi.org/10.1016/s0065-2601(08)60052-0)
- Media Literacy Now. (2024). U.S. Media Literacy Policy Report 2023. In *Medialiteracynow*. Retrieved April 18, 2024, from <https://osis.bg/wp-content/uploads/2023/06/MLI-report-in-English-22.06.pdf>
- Mikolajczak-Degrauwe, K., & Brengman, M. (2014). The influence of advertising on compulsive buying — The role of persuasion knowledge. *Journal of Behavioral Addictions*, 3(1), 65–73. <https://doi.org/10.1556/jba.2.2013.018>
- Mills, J., & Jellison, J. M. (1967). Effect on opinion change of how desirable the communication is to the audience the communicator addressed. *Journal of Personality and Social Psychology*, 6(1), 98–101. <https://doi.org/10.1037/h0021217>
- Ministerie van Onderwijs, Cultuur en Wetenschap. (2022, August 15). *Tertiary (higher) education*. Secondary Vocational Education (MBO) and Tertiary (Higher) Education | Government.nl. <https://www.government.nl/topics/secondary-vocational-education-mbo-and-tertiary-higher-education/tertiary-higher-education#>

- Mohr, S., & Köhl, R. (2021). Exploring persuasion knowledge in food advertising: an empirical analysis. *SN Business & Economics*, 1(8). <https://doi.org/10.1007/s43546-021-00108-y>
- Moore, J. J., & Rodgers. (2005). An examination of advertising credibility and skepticism in five different media using the persuasion knowledge model [paper presentation]. *Annual Conference of the American Advertising Academy, Houston.*
- Mukherjee, A., & Lee, S. Y. (2016). Scarcity appeals in advertising: The moderating role of expectation of scarcity. *Journal of Advertising*, 45(2), 256–268.
<https://doi.org/10.1080/00913367.2015.1130666>
- Nelson, M. R. (2015). Developing persuasion knowledge by teaching advertising literacy in primary school. *Journal of Advertising*, 45(2), 169–182.
<https://doi.org/10.1080/00913367.2015.1107871>
- Nelson, M. R., Atkinson, L., Rademacher, M. A., & Ahn, R. (2017). How media and family build children’s persuasion knowledge. *Journal of Current Issues and Research in Advertising*, 38(2), 165–183. <https://doi.org/10.1080/10641734.2017.1291383>
- Nelson, M. R., Wood, M., & Paek, H. (2009). Increased persuasion knowledge of video news releases: Audience beliefs about news and support for source disclosure. *Journal of Mass Media Ethics*, 24(4), 220–237. <https://doi.org/10.1080/08900520903332626>
- Obermiller, C., & Spangenberg, E. R. (1998). Development of a scale to measure consumer skepticism toward advertising. *Journal of Consumer Psychology*, 7(2), 159–186.
https://doi.org/10.1207/s15327663jcp0702_03
- Orji, R. (2016). Persuasion and culture: Individualism-collectivism and susceptibility to influence strategies. *PPT@ PERSUASIVE*, 30–39. <http://ceur-ws.org/Vol-1582/16Orji.pdf>

- Park, J., Kim, J., & Kim, S. (2020). Evolutionary aspects of scarcity information with regard to travel options: The role of childhood socioeconomic status. *Journal of Travel Research*, *61*(1), 93–107. <https://doi.org/10.1177/0047287520971040>
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1988). Adaptive strategy selection in decision making. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *14*(3), 534–552. <https://doi.org/10.1037/0278-7393.14.3.534>
- Perneger, T., Courvoisier, D. S., Hudelson, P., & Gayet-Ageron, A. (2014). Sample size for pre-tests of questionnaires. *Quality of Life Research*, *24*(1), 147–151. <https://doi.org/10.1007/s11136-014-0752-2>
- Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, *41*(5), 847–855. <https://doi.org/10.1037/0022-3514.41.5.847>
- Pomering, A., & Johnson, L. W. (2009). Advertising corporate social responsibility initiatives to communicate corporate image. *Corporate Communications: An International Journal*, *14*(4), 420–439. <https://doi.org/10.1108/13563280910998763>
- Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology*, *34*(2), 243–281. <https://doi.org/10.1111/j.1559-1816.2004.tb02547.x>
- Rhine, R. J., & Severance, L. J. (1970). Ego-involvement, discrepancy, source credibility, and attitude change. *Journal of Personality and Social Psychology*, *16*(2), 175–190. <https://doi.org/10.1037/h0029832>
- Riana, A. P. (2020). Factors that influence persuasion knowledge and enjoyment. *Master Thesis University of Twente*. <https://essay.utwente.nl/82701/>

- Ringold, D. J. (2002). Boomerang effects in response to public health interventions: Some unintended consequences in the alcoholic beverage market. *Journal of Consumer Policy*, 25(1), 27–63. <https://doi.org/10.1023/a:1014588126336>
- Rozendaal, E., Buijzen, M., & Valkenburg, P. M. (2010). Comparing children's and adults' cognitive advertising competences in the Netherlands. *Journal of Children and Media*, 4(1), 77–89. <https://doi.org/10.1080/17482790903407333>
- Rozendaal, E., Lapierre, M. A., Van Reijmersdal, E. A., & Buijzen, M. (2011). Reconsidering advertising literacy as a defense against advertising effects. *Media Psychology*, 14(4), 333–354. <https://doi.org/10.1080/15213269.2011.620540>
- Sagarin, B. J., Cialdini, R. B., Rice, W. E., & Serna, S. B. (2002). Dispelling the illusion of invulnerability: The motivations and mechanisms of resistance to persuasion. *Journal of Personality and Social Psychology*, 83(3), 526–541. <https://doi.org/10.1037/0022-3514.83.3.526>
- Schuster, C., & Lübbe, D. (2015). MANOVA versus mixed models: Comparing approaches to modeling within-subject dependence. In *Springer proceedings in mathematics & statistics* (pp. 369–385). https://doi.org/10.1007/978-3-319-20585-4_16
- Shingala, M. C., & Rajyaguru, A. (2015). Comparison of post hoc tests for unequal variance. *International Journal of New Technologies in Science and Engineering*, 2(5), 22–33.
- Smith, J. R., Hogg, M. A., Martin, R., & Terry, D. J. (2007). Uncertainty and the influence of group norms in the attitude-behaviour relationship. *British Journal of Social Psychology*, 46(4), 769–792. <https://doi.org/10.1348/014466606x164439>
- Srivastava, J., & Chakravarti, D. (2009). Channel negotiations with information asymmetries: Contingent influences of communication and trustworthiness reputations. *Journal of Marketing Research*, 46(4), 557–572. <https://doi.org/10.1509/jmkr.46.4.557>

- Sweeney, J., & Swait, J. (2008). The effects of brand credibility on customer loyalty. *Journal of Retailing and Consumer Services*, *15*(3), 179–193.
<https://doi.org/10.1016/j.jretconser.2007.04.001>
- Tutaj, K., & Van Reijmersdal, E. A. (2012). Effects of online advertising format and persuasion knowledge on audience reactions. *Journal of Marketing Communications*, *18*(1), 5–18.
<https://doi.org/10.1080/13527266.2011.620765>
- Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *Quarterly Journal of Economics*, *106*(4), 1039–1061.
<https://doi.org/10.2307/2937956>
- Van Herpen, E., Pieters, F., & Zeelenberg, M. (2007). When less sells more and when it does not: The impact of product scarcity on preference and choice. *Mansholt Graduate School Working Paper*. <https://library.wur.nl/WebQuery/wurpubs/fulltext/42489>
- Van Herpen, E., Pieters, R., & Zeelenberg, M. (2009). When demand accelerates demand: Trailing the bandwagon☆. *Journal of Consumer Psychology*, *19*(3), 302–312.
<https://doi.org/10.1016/j.jcps.2009.01.001>
- Van Reijmersdal, E. A., Fransen, M. L., Van Noort, G., Oprea, S. J., Vandenberg, L., Reusch, S., Van Lieshout, F., & Boerman, S. C. (2016). Effects of disclosing sponsored content in blogs. *American Behavioral Scientist*, *60*(12), 1458–1474.
<https://doi.org/10.1177/0002764216660141>
- Verhage. (2013). *Grondslagen van de marketing* (8th ed.). Noordhoff.
- Wei, M., Fischer, E., & Main, K. J. (2008). An examination of the effects of activating persuasion knowledge on consumer response to brands engaging in covert marketing. *Journal of Public Policy & Marketing*, *27*(1), 34–44.
<https://doi.org/10.1509/jppm.27.1.34>
- Wellman, H. M. (1990). *The child's theory of mind*. The MIT Press.

- Wheeler, S. C., Briñol, P., & Hermann, A. D. (2007). Resistance to persuasion as self-regulation: Ego-depletion and its effects on attitude change processes. *Journal of Experimental Social Psychology*, *43*(1), 150–156.
<https://doi.org/10.1016/j.jesp.2006.01.001>
- Wu, W., Lu, H., Wu, Y., & Fu, C. (2012). The effects of product scarcity and consumers' need for uniqueness on purchase intention. *International Journal of Consumer Studies*, *36*(3), 263–274. <https://doi.org/10.1111/j.1470-6431.2011.01000.x>
- Wu, X., Jin, L., & Xu, Q. (2021). Expertise makes perfect: how the variance of a reviewer's historical ratings influences the persuasiveness of online reviews. *Journal of Retailing*, *97*(2), 238–250. <https://doi.org/10.1016/j.jretai.2020.05.006>
- Xiao, B., Xie, X., Chen, W., Law, D. M., Onditi, H. Z., Liu, J., & Shapka, J. D. (2023). Measurement invariance of the resistance to peer influence scale across culture and gender. *European Journal of Psychological Assessment*. <https://doi.org/10.1027/1015-5759/a000754>
- Zarouali, B., Poels, K., Ponnet, K., & Walrave, M. (2020). The influence of a descriptive norm label on adolescents' persuasion knowledge and privacy-protective behavior on social networking sites. *Communication Monographs*, *88*(1), 5–25.
<https://doi.org/10.1080/03637751.2020.1809686>
- Zhang, J., Jiang, N., Turner, J. J., & Pahlevansharif, S. (2022). The impact of scarcity on consumers' impulse buying based on the S-O-R theory. *Frontiers in Psychology*, *13*.
<https://doi.org/10.3389/fpsyg.2022.792419>

Appendix

Appendix A: Different pre-test stimulus

Brand credibility stimulus

Travelspot A

TravelSpot is een gerenommeerd bedrijf in de reisindustrie, bekend om haar uitstekende vakantiepakketten en eersteklas klantenservice. Bovendien heeft TravelSpot de hoogste onderscheidingen in de branche ontvangen en is bekroond door vooraanstaande reisverenigingen. Reisliedhebbers en reisexperts prijzen het bedrijf vaak vanwege hun toewijding om onvergetelijke en stressvrije reizen te bieden, zoals blijkt uit hun lovende getuigenissen en aanbevelingen.

Travelspot B

TravelSpot is een bedrijf in de reisindustrie, bekend om zijn vakantiepakketten en klantenservice. TravelSpot heeft de laatste tijd te maken gehad met enige onenigheid en kritiek. Ze zijn onder de loep genomen vanwege hun praktijken en hebben wisselende feedback ontvangen van reizigers die vinden dat hun ervaringen niet altijd aan hun verwachtingen voldoen. Geef hieronder aan tot in hoeverre u het eens met de volgende beweringen over Travelspot.

Bright vacations A

Bright Vacations is een prominent bedrijf in de reisindustrie, bekend om zijn innovatieve vakantiepakketten en uitstekende klantenservice. Het bedrijf heeft prestigieuze onderscheidingen ontvangen van gerenommeerde reisorganisaties en wordt gewaardeerd om zijn transparante en ethische bedrijfspraktijken. Reizigers benadrukken regelmatig de toewijding van Bright Vacations om unieke en onvergetelijke reiservaringen te bieden, wat blijkt uit enthousiaste recensies en aanbevelingen van tevreden klanten. Geef hieronder aan tot in hoeverre u het eens met de volgende beweringen over Bright Vacations

Bright Vacations B

Bright Vacations is een bedrijf in de reisindustrie, bekend om zijn vakantiepakketten en klantenservice. Echter, het bedrijf heeft onlangs te maken gehad met kritische tegengeluiden. Er zijn zorgen geuit over bepaalde zakelijke praktijken, en sommige reizigers hebben wisselende ervaringen gedeeld, waarbij ze vinden dat de service niet altijd aan hun verwachtingen voldoet.

Reisrijk A

Reisrijk is een bedrijf in de reisindustrie dat vakantie-ervaringen en klantenservice aanbiedt. Echter, de reputatie van Reisrijk is recentelijk geschaad door controversiële en negatieve feedback. Sommige reizigers hebben teleurstellende ervaringen gedeeld, waarbij ze vinden dat de geweldige reiservaring die beloofd wordt, niet altijd wordt waargemaakt.

Reisrijk B

Reisrijk is een vooraanstaand reisbedrijf met de reputatie dat het onvergetelijke vakantie-ervaringen en een uitstekende klantenservice biedt. Het bedrijf heeft prestigieuze onderscheidingen ontvangen van toonaangevende reisverenigingen en staat bekend om haar toewijding voor het creëren van fantastische reizen. Reizigers overal in Nederland waarderen Reisrijk voor haar betrokkenheid en het overtreffen van verwachtingen. Dit wordt weerspiegeld in talloze positieve recensies en aanbevelingen van tevreden klanten en deskundige reizigers.

Pre-tested Scarcity and social proof stimulus

Figure 6

Pre-test Control condition


The screenshot displays a search results page for hotels. At the top, it shows 'Hotels' with '86 Resultaten'. Below this, it indicates 'Getoond (1-4) van 86' and 'Gesorteerd op meest relevant'. Two hotel listings are visible:

- Marseille Coastal Retreat Hotel:**
 - Address: 22 Rue du Vieux Port, 13001 Marseille, Frankrijk
 - Rating: 3 stars
 - Price: Vanaf €93/nacht (inclusief belasting en toelagen)
 - Button: Bekijk het aanbod
- Mediterranean Breeze Hotel:**
 - Address: 14 Quai des Belges, 13002 Marseille, Frankrijk
 - Rating: 3 stars
 - Price: Vanaf €97/nacht (inclusief belasting en toelagen)
 - Button: Bekijk het aanbod

Figure 7*Pre-test Scarcity – Alleen vandaag nog/ Only today*

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant ▾



Marseille Coastal Retreat Hotel


📍 22 Rue du Vieux Port, 13001 Marseille, Frankrijk

★★★★ Hotel

Alleen vandaag nog

Vanaf
€93/nacht
inclusief
belasting en
toelagen

[Bekijk het aanbod](#)



Mediterranean Breeze Hotel

📍 14 Quai des Belges, 13002 Marseille, Frankrijk

★★★★ Hotel

Vanaf
€97/nacht
inclusief
belasting en
toelagen


[Bekijk het aanbod](#)

Figure 8

Pre-test Scarcity – Wees er snel bij / Be quick about it.

Hotels
86 Resultaten


Getoond (1-4) van 86 Gesorteerd op meest relevant ▾



Marseille Coastal Retreat Hotel
📍 22 Rue du Vieux Port, 13001 Marseille, Frankrijk
★★★★ Hotel
Wees er snel bij

Vanaf **€93/nacht**
inclusief belasting en toelagen

Bekijk het aanbod



Mediterranean Breeze Hotel
📍 14 Quai des Belges, 13002 Marseille, Frankrijk
★★★★ Hotel


Vanaf **€97/nacht**
inclusief belasting en toelagen

Bekijk het aanbod

Figure 9*Pre-test Scarcity – Beperkt beschikbaar / Limited availability*

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant ▾




Marseille Coastal Retreat Hotel
Vanaf **€93/nacht**
inclusief
belasting en
toelagen

📍 22 Rue du Vieux Port, 13001 Marseille, Frankrijk

★★★★ Hotel

Beperkt beschikbaar

Bekijk het aanbod



Mediterranean Breeze Hotel
Vanaf **€97/nacht**
inclusief
belasting en
toelagen

📍 14 Quai des Belges, 13002 Marseille, Frankrijk

★★★★ Hotel

Bekijk het aanbod


Figure 10

Pre-test Social proof – 5/5 erg goed 371 reviews 5/5 rating based on 371 reviews.

Hotels

86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant ▾




Marseille Coastal Retreat Hotel
Vanaf **€93/nacht**
inclusief
belasting en
toelagen

22 Rue du Vieux Port, 13001 Marseille, Frankrijk

★★★★ Hotel

5.0 **Erg goed 371 reviews**

Bekijk het aanbod



Mediterranean Breeze Hotel
Vanaf **€97/nacht**
inclusief
belasting en
toelagen

14 Quai des Belges, 13002 Marseille, Frankrijk

★★★★ Hotel


Bekijk het aanbod

Figure 11

Pre-test Social proof - Vandaag al 7 keer geboekt/ Booked 7 times today

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant ▾




Marseille Coastal Retreat Hotel
Vanaf **€93/nacht**
inclusief
belasting en
toelagen

📍 22 Rue du Vieux Port, 13001 Marseille, Frankrijk

★★★★ Hotel

Vandaag al 7 keer geboekt

Bekijk het aanbod



Mediterranean Breeze Hotel
Vanaf **€97/nacht**
inclusief
belasting en
toelagen

📍 14 Quai des Belges, 13002 Marseille, Frankrijk

★★★★ Hotel


Bekijk het aanbod

Figure 12

Pre-test Social proof - Beste boeking van het jaar volgens reizigers/ Best booking of the year according to travellers.

Hotels
86 Resultaten

Getoond (1-4) van 86 Gesorteerd op meest relevant ▾




Marseille Coastal Retreat Hotel
Vanaf **€93/nacht**
inclusief
belasting en
toelagen

📍 22 Rue du Vieux Port, 13001 Marseille, Frankrijk
★★★★ Hotel

Beste boeking van het jaar volgens reizigers

Bekijk het aanbod



Mediterranean Breeze Hotel
Vanaf **€97/nacht**
inclusief
belasting en
toelagen

📍 14 Quai des Belges, 13002 Marseille, Frankrijk
★★★★ Hotel

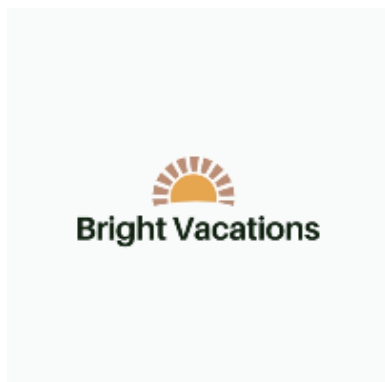
Bekijk het aanbod

Appendix B Stimulus brand credibility

Low credibility brand introduction (Original)

Bright Vacations is een bedrijf in de reisindustrie dat vakantie-ervaringen en klantenservice aanbiedt. Echter, de reputatie van Bright Vacations is recentelijk geschaad door controversiële en negatieve feedback. Sommige reizigers hebben teleurstellende ervaringen gedeeld, waarbij ze vinden dat de geweldige reiservaring die beloofd wordt, niet altijd wordt waargemaakt.

Hieronder staat het logo van Bright Vacations.



Low credibility brand introduction (translated)

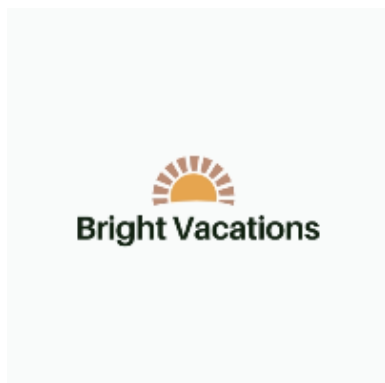
Bright Vacations is a **company in the travel industry** offering holiday experiences and customer service. However, Bright Vacations' **reputation** has recently been **damaged** by **controversial and negative feedback**. Some travellers have shared **disappointing experiences**, finding that the **great travel experience promised is not always delivered**.

Below is Bright Vacations' logo.

High credibility brand introduction (original)

Bright Vacations is een **prominent bedrijf** in de **reisindustrie**, bekend om zijn **innovatieve vakantiepakketten** en **uitstekende klantenservice**. Het bedrijf heeft **prestigieuze onderscheidingen** ontvangen van **gerenommeerde reisorganisaties** en wordt **gewaardeerd om zijn transparante en ethische bedrijfspraktijken**. Reizigers benadrukken regelmatig de toewijding van Bright Vacations om **unieke en onvergetelijke reiservaringen** te bieden, wat blijkt uit **enthousiaste recensies** en **aanbevelingen van tevreden klanten**.

Hieronder staat het logo van Bright Vacations.



High credibility brand introduction (translated)

Bright Vacations is a prominent company in the travel industry, known for its innovative holiday packages and excellent customer service. The company has received prestigious awards from renowned travel companies and is appreciated for its transparent and ethical business practices. Travellers regularly highlight Bright Vacations' commitment to providing unique and unforgettable travel experiences, as evidenced by enthusiastic reviews and recommendations from satisfied customers.

Appendix C. Measurement scales used.

Contesting measurement

The first five statements of contesting strategies are operationalized based on various contesting strategies (challenging the content and source derogation) (Fransen et al., 2015; Herlaar, 2020). The last four statements are added to research whether resistance is not only limited to cognitive but could also lead to behavioural change. All items of the scale were changed to Dutch and whenever the scale listed “this brand” the fictional brand Bright Vacations was used instead, the comparison between the original scale and the scale that was used can be viewed in Table 19. All items were measured on a seven-point Likert scale.

Table 19

Contesting measurement changes made

Original (Herlaar, 2020)	Used for this study
I think of arguments that challenge the message.	Ik bedenk argumenten die tegen de informatie op de website zijn.
I look for flaws in the messages’ argumentation.	Ik zoek naar zwakke punten in de argumentatie van de informatie op de website.
I think of the ways I disagree with the presented message.	Ik bedenk op welke manieren ik het niet eens ben met de gepresenteerde informatie op de website
I have negative thoughts about the brand in the message.	Ik heb negatieve gedachten over Bright Vacations
I think unfavourably about the brand that made the message.	Ik denk ongunstig over Bright Vacations, het merk dat deze website heeft gemaakt
I ignore the information of the website of Bright Vacations	Ik negeer de informatie van de website van Bright Vacations.
I would not book this vacation at Bright Vacations	Ik zou mijn vakantie niet bij Bright Vacations boeken.
I would leave the website of Bright Vacations	Ik zou de website van Bright Vacations verlaten.
I would book my vacation on another website.	Ik zou mijn vakantie op een andere website boeken.

Note. The first three items were about contesting the message, the two items after that measured source derogation and the last four items were behavioural statements that were added for this study, they were not part of the study from (Herlaar, 2020).

Persuasion knowledge measurement

Based on previous research by Tutaj and Van Reijmersdal (2012) persuasion knowledge was split up between the understanding of the intent (Rozendaal et al., 2010) and scepticism towards advertising (Obermiller & Spangenberg, 1998). Both scales were measured on a seven-point Likert scale and slightly adjusted to fit the purpose of a website and were also translated into Dutch. Changes made to the original scales can be viewed in Table 20 and Table 21.

Table 20

Understanding of the Intent Measurement changes made

Original (Rozendaal et al., 2010) & (Tutaj and Van Reijmersdal 2012)	Used for this study
The aim of this banner/text is to sell products/services.	Het doel van deze website is om vakanties te verkopen*
The aim of this banner/text is to stimulate the sales of products/services.	Het doel van deze website is om de verkoop van vakanties te stimuleren
The aim of this banner/text is to influence your opinion.	Het doel van deze website is om uw mening te beïnvloeden.
The aim of this banner/text is to make people like certain products/services.	Het doel van deze website is om ervoor te zorgen dat mensen meer van deze vakantie houden.
The aim of this banner/text is to give information about products/services.	Het doel van deze website is om informatie te geven over vakanties.
The aim of this banner/text is to let people know more about the products/services.	Het doel van deze website is om mensen meer te laten weten van de vakanties.

Note. On the measurement item marked with * a different version was used in the control condition. In the control condition, the question contained "the design of the website," whereas in the other conditions it contained the word text.

Table 21

Scepticism towards advertising measurement changes made

Original (Obermiller & Spangenberg, 1998) ^a	Used for this study
We can depend on getting the truth from this banner/text	We kunnen erop vertrouwen dat deze website de waarheid bevat
This banner/text aims to inform the consumer.	Deze website is bedoeld om de consument te informeren
This banner/text is informative	Deze website is informatief
This banner/text contains the truth	Deze website bevat de waarheid
This banner/text is a reliable source of information about the quality and performance of the product.	Deze website is een betrouwbare bron van informatie over de kwaliteit van vakanties.
This banner/text is a truth well told	*
This banner/text presents a true picture of the product being advertised	Deze website geeft een waarheidsgetrouw beeld van de geadverteerde vakanties
I feel I have been accurately informed after viewing this banner/text	Ik voel me juist geïnformeerd na het zien van deze website
This banner/text provides consumers with essential information.	Deze website geeft consumenten essentiële informatie.

Note. One item "This banner/text is a truth well told" marked with * was removed as this phrase is not used anymore in daily life and could thus create confusion.

^a The scale was reverse coded so that a higher score indicated more scepticism.

Below the list of measurement scales that were used for manipulation checks can be found, each scale was measured on a seven-point Likert scale and was adjusted to the travel context. Changes made to the original scales can be viewed in Table 22 for scarcity, Table 23 for time scarcity, Table 24 for social proof and Table 25 for brand credibility.

Table 22

Scarcity (manipulation check) measurement changes made

Original (Wu et al., 2012)	Changed for this study
I think that the current supply of this product is small.	Ik denk dat het huidige aanbod van deze vakantie beperkt is.
I think that this product is selling out soon.	Ik denk dat deze vakantie snel uitverkocht zal zijn.
I think that many people will buy this product.	Ik denk dat veel mensen deze vakantie willen boeken
I feel that the limited edition of this product will cause many people to buy.	Ik denk dat een tijdelijke deal voor deze vakantie ervoor zal zorgen dat veel mensen deze vakantie willen boeken
I think the supplies only limited in x will cause a lot of people to buy.	Ik denk dat het beperkte aanbod van deze vakantie ervoor zal zorgen dat veel mensen het gaan boeken.

Note. Translated and adjusted to travel context.

Table 23

Perceived time scarcity (manipulation check) measurement changes made

Original (Gupta & Gentry, 2015)	Changed for this study
I think this product sells out fast.	^a
I think the company intentionally limits this product's selling time.	Ik denk dat Bright Vacations de tijd om deze vakantie te boeken opzettelijk beperkt
I think the limitation of this product was strategically created by the company.	Ik denk dat de beperking van de tijd voor deze vakantie strategisch is gecreëerd door Bright Vacations

Note. Translated and adjusted to travel context.

^a This item was not incorporated in this scale as it was already used in the general scarcity scale.

Table 24

Social proof (manipulation check) measurement changes made

(Van Herpen et al., 2009)	Changed for this study
This product is popular.	Deze vakantie is populair.
I think that many people want to buy this product.	Ik denk dat veel mensen deze vakantie willen boeken.
This product is sold well	Deze vakantie wordt veel geboekt

Note. Translated and adjusted to travel context.

Table 25

Brand credibility (manipulation check) measurement

Original (Erdem & Swait, 2004)	Changed for this study
This brand reminds me of someone who's competent. and knows what he/she is doing.	Bright Vacations doet me denken aan iemand die competent is en weet wat hij/zij doet.
This brand has the ability to deliver what it promises.	Bright Vacations heeft het vermogen om waar te maken wat het belooft.
This brand delivers what it promises.	Bright Vacations maakt waar wat het belooft.
This brand's product claims are believable.	De claims over vakanties van Bright Vacations zijn geloofwaardig.
Over time, my experiences with this brand have led me to expect it to keep its promises, no more and no less.	^a
This brand has a name you can trust.	Bright vacations is te vertrouwen
This brand doesn't pretend to be something it is not.	Bright Vacations doet zich voor als iets wat het niet is. ^b

Note. This brand was changed to Bright Vacations and the product was changed to Holiday to make it more specific.

^a This statement was removed as a fictional brand was used, so this was the first encounter with the brand.

^b This statement had two denials in the question, which could confuse participants and was therefore changed so it only contained one denial.

Appendix D Factor analysis

Table 26

Factor analysis rotated component matrix.

Statements	Factor loading					
	1	2	3	4	5	6
Cont_beh1- Ik zou de website van bright Vacations verlaten	.815					
Cont_beh2- Ik zou mijn vakantie niet bij Bright Vacations boeken	.802					
Cont_beh3- Ik zou mijn vakantie op een andere website boeken	.731					-.334
Cont_source1- Ik denk ongunstig over Bright Vacations, het merk dat deze website heeft gemaakt	.700		.402			
Cont_source2- Ik heb negatieve gedachten over Bright Vacations	.687					
PK_sceptici1- Deze website geeft consumenten essentiële informatie (Reversed)	.600	.402				
PK_sceptici2- Deze website is een betrouwbare bron van informatie over de kwaliteit van vakanties (Reversed)		.806				
PK_sceptici3- Deze website geeft een waarheidsgetrouw beeld van de geadverteerde vakanties (Reversed)	.305	.800				
PK_sceptici4- We kunnen erop vertrouwen dat deze website de waarheid bevat (Reversed)		.791				
PK_sceptici5 - Deze website bevat de waarheid (Reversed)		.708		.354		
PK_sceptici6- Deze website is informatief (Reversed)		.573	.538			
PK_sceptici7- Ik voel me juist geïnformeerd na het zien van deze website (Reversed)	.472	.535	.313			
PK_intent1 (info)- Het doel van deze website is om informatie te geven over vakanties.						-.894
PK_intent2 (info)- Het doel van deze website is om mensen meer te laten weten over de vakanties.						-.871
PK_sceptici8- Deze website is bedoeld om de consument te informeren (Reversed)		.434	.634			
Cont_beh4- Ik negeer de informatie van de website van Bright Vacations ^a	.509			.366	.456	
Cont_mes1- Ik zoek naar zwakke punten in de argumentatie van de informatie op de website.				.770		
Cont_mes2- Ik bedenk op welke manieren ik het niet eens ben met de gepresenteerde informatie op de website	.357			.737		
Cont_mes3- Ik bedenk argumenten die tegen de informatie op de website zijn.	.330	.335		.693		
PK_intent3(selling intent)- Het doel van deze website is om de verkoop van vakanties te stimuleren					.861	
PK_intent4(selling intent)- Het doel van deze website is om vakanties te verkopen					.830	
PK_intent5(persuasion)- Het doel van deze website is om uw mening te beïnvloeden.					.661	.354

PK_intent6 (persuasion)- Het doel van deze website is
om ervoor te zorgen dat mensen meer van deze
vakanties houden. .865

Note. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.

a This item was removed, because this item did not fit in one factor, additionally it also improved Cronbach's alpha from .806 to .890.

Appendix E: Reliability analysis

Table 27

Reliability analysis credibility

Original Cronbach's alpha .875, $N = 6$

	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Die competent is en weet wat hij/zij doet vermogen om waar te maken wat het belooft.	20.62	22.788	.771	.837
De claims over vakanties van Bright Vacations zijn geloofwaardig.	20.86	23.114	.804	.830
Bright Vacations is te vertrouwen	20.53	28.130	.476	.885
Bright Vacations doet zich voor als iets wat het niet is (Reversed)	20.83	24.762	.839	.829
Bright Vacations maakt waar wat het belooft.	20.73	28.277	.457	.888 ^a
	21.07	24.855	.758	.840

Note.

^a This item was kept within the analysis since the removal only improved the score slightly.

Table 28

Reliability analysis source derogation

Original Cronbach's alpha .855, $N = 2$

	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ik heb negatieve gedachten over Bright Vacations	3.28	1.424	.749	- ^a
Ik denk ongunstig over Bright Vacations, het merk dat deze website heeft gemaakt	3.17	1.231	.749	-

Note.

^a This item had no scores because there were only two items.

Table 29

Reliability analysis challenging the content.

Original Cronbach's alpha .815, $N = 3$

	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ik bedenk argumenten die tegen de informatie op de website zijn	7.85	5.884	.627	.786
Ik zoek naar zwakke punten in de argumentatie van de informatie op de website	7.49	4.829	.701	.709
De claims over vakanties van Bright Vacations zijn geloofwaardig.	7.55	5.000	.678	.733

Note. This scale was kept as it was.

Table 30*Reliability analysis contesting behaviour or avoidance behaviour*Original Cronbach's alpha .806, $N = 4$

	Scale means if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
Ik negeer de informatie van de website van Bright Vacations^a	11.77	13.331	.293	.890
Ik zou mijn vakantie niet bij Bright Vacations boeken	11.11	9.323	.754	.689
Ik zou de website van Bright Vacations verlaten	11.35	9.009	.774	.677
Ik zou mijn vakantie op een andere website boeken	10.64	9.749	.705	.715

Note. This scale was kept as it currently is.

^a This item was deleted, because this improved the reliability of the scale from .806 to .890.**Table 31***Persuasion knowledge understanding intent.*Original Cronbach's alpha .621, $N = 6$

	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Het doel van deze website is om vakanties te verkopen	23.31	16.190	.382	.572
Het doel van deze website is om de verkoop van vakanties te stimuleren	23.59	15.115	.414	.555
Het doel van deze website is om uw mening te beïnvloeden	23.99	15.631	.274	.610
Het doel van deze website is om ervoor te zorgen dat mensen meer van deze vakantie houden	24.87	14.694	.345	.582
Het doel van deze website is om informatie te geven over vakanties	24.48	15.097	.353	.577
Het doel van deze website is om mensen meer te laten weten over de vakanties	24.75	14.363	.375	.569

Note. This scale scores very low on reliability and shows that there was no way to improve this by deleting items.

Table 32*Persuasion knowledge scepticism*Original Cronbach's alpha .880, $N = 8$

	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Het doel van deze website is om vakanties te verkopen	28.90	36.091	.652	.865
Deze website is bedoeld om de consument te informeren	29.63	38.167	.555	.874
Deze website is informatief	29.39	36.576	.628	.867
Deze website bevat de waarheid	29.12	37.905	.654	.865
Deze website is een betrouwbare bron van informatie over de kwaliteit van vakanties	28.82	36.323	.696	.860
Deze website geeft een waarheidsgetrouw beeld van de vakanties	29.00	36.121	.749	.855
Ik voel me juist geïnformeerd na het zien van deze website	29.00	36.779	.666	.863
Deze website geeft consumenten essentiële informatie	29.33	37.148	.573	.873

Note. This scale was kept as it was as the removal of any items did not improve the overall Cronbach's alpha.

Table 33*Reliability analysis scarcity*Original Cronbach's alpha .780, $N = 5$

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ik denk dat het huidige aanbod van deze vakantie beperkt is ^a	17.49	16.144	.324	.812
Ik denk dat deze vakantie snel uitverkocht zal zijn	17.69	12.485	.721	.678
Ik denk dat veel mensen deze vakantie willen boeken	17.41	13.679	.642	.710
Ik denk dat een tijdelijke deal voor deze vakantie ervoor zal zorgen dat veel mensen deze vakantie willen boeken	16.81	14.609	.516	.752
Ik denk dat het beperkte aanbod van deze vakantie ervoor zal zorgen dat veel mensen het gaan boeken	17.19	13.965	.592	.726

^a This item was deleted since it improved the reliability by 0.780 towards .812.

Table 34*Reliability analysis time scarcity*Original Cronbach's alpha .885, $N = 2$

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ik denk dat het huidige aanbod van deze vakantie beperkt is	5.03	1.650	.793	.812 _a
Ik denk dat deze vakantie snel uitverkocht zal zijn	4.85	1.576	.793	.678

Note. This scale was kept as it was as the removal of any items did not improve the overall Cronbach's alpha.

a No score, because there were only two items.

Table 35*Reliability analysis social proof assessed through perceived popularity.*Original Cronbach's alpha .920, $N = 3$

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Deze vakantie is populair	8.77	5.012	.819	.900
Ik denk dat veel mensen deze vakantie willen boeken	8.75	4.687	.861	.866
Deze vakantie wordt veel geboekt	8.81	4.560	.837	.887

Note. This scale was kept as it was as the removal of any items did not improve the overall Cronbach's alpha.

Appendix F: Normality and equal variance

Table 36

Normality across conditions

		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig	Statistic	df	Sig
Contesting source derogation	Scarcity	.147	50	.009	.891	50	.000
	Social proof	.177	56	.000	.942	56	.010
	Control	.123	44	.000	.941	44	.026
PK_Understanding intent	Scarcity	.087	50	.200	.976	50	.408
	Social proof	.097	56	.200	.986	56	.776
	Control	.096	44	.400	.960	44	.131
PK_Sceptici	Scarcity	.159	50	.003	.875	50	.000
	Social proof	.091	56	.200	.976	56	.327
	Control	.069	44	.200	.972	44	3.54
PK_Total	Scarcity	.123	50	.055	.911	50	.001
	Social proof	.106	56	.182	.968	56	.143
	Control	.069	4	.200	.975	44	.455
Contesting message	Scarcity	.100	50	.200	.986	50	.808
	Social proof	.139	56	.009	.956	56	.041
	Control	.154	44	.011	.947	44	.043
Contesting behaviour	Scarcity	.120	50	.070	.946	50	.024

	Social proof	.139	56	.009	.966	56	.116
	Control	.132	44	.053	.972	44	.358
Contesting total score	Scarcity	.134	50	.026	.950	50	.036
	Social proof	.055	56	.200	.983	56	.607
	Control	.067	44	.200	.986	44	.865

Table 37*Equal variance across conditions scarcity*

		Levene's statistic	Df1	Df92	Sig
Contesting source derogation	Based on mean	.378	1	92	.540
PK understanding intent	Based on mean	3.953	1	92	.050
PK sceptici	Based on mean	3.345	1	92	.071
PK total	Based on mean	.066	1	92	.798
Contesting message	Based on mean	.029	1	92	.865
Contesting behaviour	Based on mean	.903	1	92	.344
Contesting total	Based on mean	.035	1	92	.852

Table 38*Equal variance across conditions social proof*

		Levene's statistic	Df1	Df92	Sig
Contesting source derogation	Based on mean	.007	1	98	.935
PK understanding intent	Based on mean	4.374	1	98	.039
PK sceptici	Based on mean	.632	1	98	.428
PK total	Based on mean	.448	1	98	.505
Contesting message	Based on mean	5.031	1	98	.027
Contesting behaviour	Based on mean	.025	1	98	.874
Contesting total	Based on mean	.596	1	98	.442

Appendix G: Non-parametric tests

Based on the normality and equal variance tests the normality and/or equal variance assumption was not met for the following variables.

Scarcity

- Source derogation
- PK_Sceptici
- PK_Total
- PK_Understanding intent
- Contesting behaviour

Table 39

Non-parametric test scarcity

	Mann-Whitney U	Sig
Contesting source derogation	1151	.690
PK understanding intent	1935	.238
PK Scepticism	2181	.487
PK total	2085	.970
Contesting behaviour	1152	.689

Social proof

- PK understanding intent.
- Contesting message
- Source derogation.

Table 40

Non-parametric test scarcity

	Mann-Whitney U	Sig
PK understanding intent	914	.027
Contesting message	1140.5	.522
Source derogation	1249.5	.901

Appendix H Testing of moderation on subparts of persuasion knowledge

Table 41

Moderation sub-concepts dependent variables scarcity

Variable	Coefficient	Se	T	P	LLCI	ULCI
PK- Understanding intent	-0.5845	0.3008	-1.9433	0.0551	-1.1820	0.130
PK-Scepticism	-0.0217	0.3468	-0.0627	0.9502	-0.7107	0.6673
Contesting-Source derogation	-0.3104	0.4452	-0.6972	0.4875	-1.1950	0.5741
Contesting-Message	-0.03332	0.5059	-0.0656	0.9478	-1.0383	0.9719
Contesting- Behaviour	-0.1597	0.4730	-0.337	0.7364	-1.0994	0.7800

Note. Moderation was tested through PROCESS macro.

Table 42

Moderation through sub-concepts dependent variables social proof

Variable	Coefficient	Se	T	P	LLCI	ULCI
PK- Understanding intent	-0.0255	0.1413	-0.1801	0.8574	-0.3059	-0.2550
PK-Scepticism	-0.0187	0.1817	-0.1026	0.9185	-0.3784	0.3421
Contesting-Source derogation	0.0072	0.1963	0.0365	0.9710	-0.3825	0.3968
Contesting-Message	-0.0827	0.2097	-0.3945	0.6941	-0.8400	0.3955
Contesting- Behaviour	-0.0181	0.2400	-0.0754	0.9400	-0.4945	0.4583

Note. Moderation was tested through PROCESS macro.