The Online Colour of Initial Trust

A cross-cultural study about the effects of displayed colours in an online retail environment on purchase intention, mediated by initial trust

L.J.M. van Doremalen

ANR: 832889

Master thesis

Communication and Information Sciences

Specialization Business Communication and Digital Media

Faculty of Humanities

Tilburg University, Tilburg

Supervisor: Dr. P. Broeder

Second reader: Dr. E. Croes

Final version

January 2019

Preface

With this master thesis I conclude my master in Communication and Information Sciences at Tilburg University. At first, I did not select a particular specialisation track for this master. Personally, I am interested in a lot of topics and did not have a preference for a certain track. However, after the first semester I noticed that one track caught my attention the most. Now I am glad to announce that I specialised myself in Business Communication and Digital Media.

Easy is not a word that describes the process of writing this thesis. However, my interest in the subject kept me motivated. In my Bachelor I already investigated how scents could affect marketing. I have always been inquisitive to different cultures and cues that could affect marketing. So in the end, maybe I did know that this specialisation would suit me the most.

I quite enjoyed the process of writing this master thesis; which also left me a new Russian friend. During the whole process I worked closely with five other students called research group ‘Culture Online’. Therefore, the questionnaires are comparable and parts of it overlap.

I would like to thank a few people that helped me with writing this thesis. First, I would like to thank the man who drives a Fiat 500 (no Mini), also known as my supervisor, Dr. Peter Broeder. Without his enthusiasm, guidance, and advice this thesis would not be the same. Second, I would like to thank research group ‘Culture Online’, specifically Anique de Bruijn, for the great collaboration and help when needed. Finally, I would like to thank my friends and family for listening to my complaints and supporting me throughout this master.

Lisanne van Doremalen

Eindhoven, January 2019

Abstract

Despite online retail shops are flourishing, consumers still perceive higher risks when purchasing products online compared to offline. Online retail shops attempt to differentiate themselves from their competitors by focussing on hedonic aspects, such as colour. Colour in an online retail environment can affect consumer trust and reduce feelings of uncertainty while shopping online. Despite the fact that colour is an important factor that could influence consumers purchase intentions, only few researchers examined the effects of colour in an online retail environment. In addition, contrasting results have been found about the effect of displaying the colour blue in an online retail environment on perceived trust. The present study replicated the findings by Snijder (2018) by investigating the mediating effect of initial trust and the moderating effect of cultural background on the relationship between colour and online purchase intention. The present study was, presumably, the first that investigated the effect of colour in an online retail environment for a low involvement product.

An online survey was conducted with two experimental conditions (blue vs. red). In total, 391 participants with a Dutch (low uncertainty avoidance) or Russian (high uncertainty avoidance) cultural background completed an online survey. The results showed that initial trust and cultural background do seem to have an effect on online purchase intention. Higher levels of initial trust were related to higher intentions to purchase the product online. In addition, Dutch consumers were more likely to purchase the product online than Russian consumers, regardless of the colour they were exposed to. However, this effect might result from other cultural dimensions rather than uncertainty avoidance. Theoretical and practical implications of these findings are discussed.

Keywords: colour, initial trust, purchase intention, uncertainty avoidance, cultural background, online retail environment

Table of Contents

1. The Online Colour of Trust

Whether or not to purchase a certain product is a decision people often face while shopping. This consideration does not only occur in offline retail environments, but also in online retail environments. The retail environment is changing significantly by the convenience of the Internet. Online retail shops are flourishing, while traditional brick-and-mortar shops are losing consumers (Chakraborty, Lee, Bagchi-Sen, Upadhyaya, & Rao, 2016). However, shops are offering increasingly similar products and services due to the proliferation of online retail shops. Instrumental qualities (e.g. convenient home delivery and broader product selections) are not perceived as unique anymore (Koo & Ju, 2010). Online retail shops need to attempt to differentiate themselves from their competitors by focussing on hedonic aspects (e.g. store atmospherics) (Spence, Puccinelli, Grewal, & Roggeveen, 2014).

Consumer behaviour can be affected by store atmospherics. Online retail shops need to look beyond the actual product to create memorable (multisensory) consumer experiences that may enhance consumers purchase intentions (Spence et al., 2014). This finding is in line with a study by Eroglu, Machleit, and Davis (2003), which emphasized that store atmospherics can influence consumers attitudes and purchase intentions. Moreover, Morton (2010) revealed that 92.6 per cent of the consumers focused on the visual factor of the store atmospheric when purchasing products. More specifically, colour is an important factor that determines the visual impression of an online retail environment.

Despite the fact that colour is an important factor that could influence consumers attitudes and purchase intentions, only few researchers examined the effects of colour in an online retail environment. Gorn, Chattopadhyay, Sengupta, and Tripathi (2004) found that consumers' evaluation of an online retail environment could be influenced by colour. In addition, Hall and Hanna (2004) as well as Pelet and Papadopoulou (2012) stated that consumers purchase intentions increased in an online retail environment when the right colour

was used. However, several researchers, among others Bellizzi and Hite (1992), acknowledge that additional research is needed to investigate the effects of specific colours in online retail environments.

Yellow, blue, and red are perceived as the three primary colours. Yellow is proved to be the most evocative colour where persuasion is concerned (Broeder & Scherp, 2017). In addition, blue is a cool colour that is associated with trust (Lee & Rao, 2010). However, Broeder and Scherp (2017) emphasized that additional empirical research is needed to corroborate the premise that blue is the colour that engenders the most trust. Recently, Snijder (2018) corroborated on this premise and was, next to the parallel study of Wildeman (2018), which corroborated the premise that red is the most evocative colour where emotion is concerned, the first who examined different colour values on online consumer behaviour. Remarkably, the studies did not compare different colours in their investigation and they only investigated high involvement products. However, the effect of colour might be stronger in an online environment that depicts a low involvement product (Rahman, 2018).

In addition to colour, trust plays an important role in an online retail environment. Establishing and maintaining trust with consumers is therefore highly relevant for online retail shops. Consumers perceive higher risks when purchasing products online (e.g. privacy and security risks) compared to offline (Miyazaki & Fernandez, 2001). Consequently, visual design is found to have a positive influence on trust in an online environment (Cyr, 2008). Lim, Leung, Sia, and Lee (2004) found that consumers from different cultures differed in their online behaviour. Cultures that are more risk averse placed more emphasis on trust-inducing factors. However, Snijder (2018) found no moderating effect of uncertainty avoidance between Dutch and Chinese cultural backgrounds.

In particular, the present study was set out to investigate what could corroborate the premise that blue engenders the most trust, stated by Broeder and Scherp (2017), combined

the studies of Snijder (2018) and Wildeman (2018), and tried to replicate the findings of Snijder (2018). The objective of this study was to examine two different, opposite colours on online purchase intention, focusing on only one aspect of trust. Different cultural backgrounds with distinct levels of uncertainty avoidance were selected for the present study to investigate if uncertainty avoidance could influence the effect of visual trust cues in an online retail environment. This paper attempts to answer the following research question:

RQ: What is the role of trust in the effect of colour on online purchase intention, and does this effect differentiate across cultures with distinct levels of uncertainty avoidance?

2. Theoretical Background

2.1 Consumers Decisions

Daily, consumers make hundreds of decisions with varying levels of involvement. Involvement is referred to as an internal state that is affected by a (external) stimulus. For instance, advertisements manipulate involvement by making it 'relevant' to the consumer: the consumer is stimulated, and hence influenced, to respond to the advertisement (Kim, 2005). Perceived personal relevance can be divided into two levels of involvement: high and low involvement. In general, high involvement products are perceived as highly relevant based on high personal importance. Conversely, low involvement products are perceived to be of low personal importance (Rahman, 2018).

According to the Elaboration Likelihood Model (Petty & Cacioppo, 1983), high involvement products induce consumers to think extensively about the true merits of the product before making the decision whether or not to purchase the product. In this case, the consumer uses a lot of cognitive effort and will undergo the central route of the model. However, low involvement products do not engage a consumer in extensive product-relevant thinking before making a decision. Purchase decisions for these types of products are made routinely. This results in the peripheral route of the model, in which consumers are less

rational and more susceptible to be persuaded by positive or negative cues (Yang, Hung, Sung, & Farn, 2006). Hence, the attractiveness of the online retail environment is more important for low involvement products, indicating that the effect of colour might be greater for an online retail shop that portrays low involvement products (Rahman, 2018).

2.2 Colour

Our world is full of colours. People choose the colours of their clothes, their cars, and even their homes. Colours can alter the meaning of objects or situations and consumer behaviour can be predicted by colour preferences (Aslam, 2006). However, people are not aware of how they perceive colour. Our eyes and brain operate together to perceive the colours we see. Actually, colour is light that is carried on distinct wavelengths. Long wavelengths are perceived as 'warm' colours (e.g. red and yellow) and short wavelengths are perceived as 'cool' colours (e.g. blue and green) (Singh, 2006). To elaborate on that, Cheng, Wu, and Yen (2009) indicated that cool colours induced more pleasant feelings than warm colours. Those results are similar to those of Cyr, Head, and Larios (2010), which emphasized that cool colours are perceived as more favourable than warm colours. In general, the colours blue, green, and violet are perceived as cool, peaceful, and calming. Moreover, these colours can reduce feelings of anxiety. Conversely, the long wavelength colours, red, orange, and yellow are perceived as warm and arousing (Clarke & Costall, 2008). More specifically, blue is a cool colour that is universally liked and is generally associated with trust (Cyr, Head, & Larios, 2010). Conversely, red is a warm colour that is exiting and stimulating, but also distracting (Kauppinen‐Räisänen, 2014).

2.3 Colour and (Online) Consumer Behaviour

Bellizzi and Hite (1992) examined the effect of colour in an offline retail environment. More specifically, they analysed the differences between the colours red (warm) and blue (cool). The results revealed that overall the blue retail environment induced more positive

outcomes (e.g. less purchase postponements, a strong tendency to shop, and more purchase intentions) than the red retail environment. However, in their second experiment the researchers stated that these results were generally due to the participants colour perception and not due to the arousal of the colour. Likewise, Roschk, Loureiro and Breitsohl (2017) stated that cool colours generate a better shopping experience, which results in more satisfied consumers.

Since these results are found for offline retail environments, and retailing is shifting from offline to online, the effects of colour in an online retail environment have also been examined. For example, Hall and Hanna (2004) investigated the effect of web page text/background colour combination on, among others, behavioural intention. The results showed that preferred colours positively influenced purchase intention. However, the study did not differentiate across cultures as the study was only conducted in the United States of America.

Cyr et al. (2010) did differentiate across cultures while studying the effect of colour use in website designs. The results revealed some appealing findings, since only a few studies examined the use of colours in online retail environments. The colour blue, compared to yellow, was found to be generally associated with trust. This finding is in line with preliminary research by Lichtle (2007). Moreover, a higher colour appeal resulted in more perceived trust/satisfaction, which subsequently influenced e-loyalty. This finding was proven to be true for different cultural groups (i.e. Germans, Canadians, and Japanese). However, no direct effect of colour on e-loyalty was found and purchase intentions were not included in this study.

Broeder and Scherp (2017) examined the effect of colour on online purchase intention. The findings showed that colour influenced online purchase intention. The researchers also emphasized that this relationship is mediated by trust. Yellow, balanced against red and blue,

turned out to be the most persuasive colour. Although confirmed by other studies, no support was found for the assumption that blue engenders the most trust.

To corroborate the premise that blue is associated with trust, Snijder (2018) built on the study of Broeder and Scherp (2017). Snijder (2018) investigated different values of blue on online booking intention. A small indirect effect of initial trust was found on the relationship between the colour dark blue and online booking intention. Purchase intention was not measured in this study. However, purchase intention was measured in a parallel study of Wildeman (2018), which also built on the study of Broeder and Scherp (2017). This study corroborated the premise that red is associated with emotion and investigated the effect of colour values on online purchase intention. Surprisingly, the results showed that a high value of red induced the highest online purchase intention. Pleasure mediated the relationship between colour and online purchase intention for the high value condition. No mediating effect was found for the low value condition.

Overall, it can be stated that colour has an influence on our behavioural intentions. In contrast to red, blue was found to have a positive effect on purchase intention of online consumers (Cyr et al., 2010). Therefore, the following hypothesis is proposed:

H1: Displaying the colour blue in an online retail environment produces higher purchase intentions compared to displaying the colour red.

2.4 Colour and Trust

A lack of trust in online retail environments is a primary reason why consumers do not purchase products online (Koufaris & Hampton-Sosa, 2004). Website quality and usability are widely recognized as antecedents of online trust (Hsin Chang & Wen Chen, 2008). These antecedents are important for enabling trust with consumers in online retail environments. However, they are largely generic since specific interface characteristics are not explicitly

involved (e.g. colour). As a consequence, studies on how colour can affect consumer trust in an online retail environment are scarce (Pelet & Papadopoulou, 2011).

Visual impression cues, such as colours, provide information about the online retail shop and can affect consumer behaviour (Eroglu, Machleit, & Davis, 2003). Cyr (2008) indicated that a positive visual impression resulted in greater website usability, which in turn increased the trustworthiness of the online retail shop. Besides that, Cyr (2008) also found a direct effect of visual impression on perceived trustworthiness. In particular, colour is designated as a pivotal component of online retail environments and proven to be important in enhancing feelings of trust (Pelet & Papadopoulou, 2011).

Kim and Moon (1998) examined cyber-banking systems among Korean participants and found that pastel colours and coloured backgrounds positively influenced feelings of trustworthiness. More specifically, trust is associated with cool colours; warm colours are not preferred (Wang & Emurian, 2005). Overall, cool colours, especially blue, are perceived as peaceful, secure, and pleasant (Cyr et al., 2010). In contrast, warm colours, especially red, are perceived to be exciting, arousing, and distracting (Kauppinen‐Räisänen, 2014).

In general, the colour blue is associated with trust (Cyr et al., 2010). Although found by other studies, Broeder and Scherp (2017) did not find support for the assumption that blue is the colour that enhances perceived trustworthiness. In a follow-up study, Snijder (2018) did find support for the assumption, but only for the dark blue condition. This finding suggest that blue is associated with feelings of trust and credibility. Though, different values of blue induced different meanings.

Colours differentiate online retail shops from each other and they influence moods and feelings of consumers. Every colour has its own associations and meanings and can thus be used to influence consumers in many different ways (Muhammad, 2018). Yellow, blue, and red are the three primary colours. Yellow is proved to be the most evocative colour where

persuasion is concerned (Broeder & Scherp, 2017). Recently, relevant studies of Snijder (2018) and Wildeman (2018) corroborated the premises that blue engenders the most trust and that red is the most evocative colour where emotion is concerned. These studies were the first that examined different colour values. Remarkably, these studies did not compare different colours in their investigation. By combining the studies of Snijder (2018) and Wildeman (2018), the present study focused on both blue and red.

Previous research indicated that the colour blue is universally liked and is associated with feelings of trust (Cyr et al., 2010). The following hypothesis is proposed, to corroborate the premise that blue engenders the most trust in an online retail environment:

H2: An online retail environment displaying the colour blue is perceived as more trustworthy compared to an online retail environment displaying the colour red.

2.5 Trust and (Online) Consumer Behaviour

Trust has been defined in various ways by several researchers. McKnight and Chervany (2002) conceptualized trust as a multi-dimensional construct consisting of: (1) initial trust, (2) institutional trust, and (3) dispositional trust. Likewise, Kooli, Ben Mansour, and Utama (2014) classified trust in three sub constructs, namely: (1) personality-based trust, (2) institutional-based trust, and (3) cognition-based trust. The sub constructs of trust indicate unique roles in the online purchasing process of consumers. Whether consumers perceive an online retail shop as confidential depends on the online retail shop itself, but also on the online environment of the online retail shop, and the general tendency to trust others. Snijder (2018) investigated the sub constructs that McKnight and Chervany (2002) conceptualized and found that only initial trust positively influenced online purchase intention.

Initial trust can be regarded as the first stage of trust establishment. In this stage consumers have no first-hand knowledge, credible information, or experience with the online retail shop (McKnight & Chervany, 2002). Initial trust can be defined as “the willingness of a

consumer to rely on a third party after the first interaction with that party" (Koufaris & Hampton-Sosa, 2004, p. 378). When consumers are unacquainted with an online retail shop they might perceive more risks and uncertainty. Online retail shops can overcome these perceptions of uncertainty by engendering trust (Harridge-March, 2006). More specifically, trust in an online retail shop can be engendered by positively influencing the perceived credibility, integrity, and benevolence of the online retail shop in the eyes of the consumers (Kooli, Ben Mansour, & Utama, 2014).

Although consumers visit online retail shops frequently, only few make an online transaction (Kooli et al., 2014). Trust is an important factor for consumers to engage in online transactions (Chen & Barnes, 2007). Consumers have to decide whether or not an online retail shop can be trusted. People perceive higher degrees of risk when purchasing products online, contrary to purchasing products offline. Mistrust of consumers in online retail shops arises from privacy and security concerns. Uncertainty is a feeling that stops consumers from purchasing products online (Miyazaki & Fernandez, 2001).

Overall, various researchers found that trust positively influenced consumers online purchase intentions (Kim, Ferrin, & Rao, 2008; Kooli et al., 2014). Those results are similar to those of Jarvenpaa, Tractinsky, and Saarinen (1999) that showed the cross-cultural effects of trust. Initial trust might operate as a universal qualifier for online purchase intentions. However, initial trust was measured using different scales across the studies. In addition, the number of items varied significantly and not all studies made a distinction between the sub constructs of trust. For example, Grazioli and Jarvenpaa (2000) measured four initial trust items on a 7-point completely (dis)agree scale, namely: (1) "This store is trustworthy", (2) " This store keeps its promises and commitments", (3) "This store keeps consumers' best interests in mind", and (4) "The store can be relied upon". Surprisingly, the researcher only mentioned perceived trustworthiness in the study and not initial trust. Additionally, Jarvenpaa

et al. (1999) measured seven initial trust items, namely: (1) “This store is trustworthy”, (2) “This store wants to be known as one who keeps promises and commitments”, (3) “ I trust this store keeps my best interests in mind”, (4) “ I find it necessary to be cautious with this store”, (5) “This retailer has more to lose than to gain by not delivering on their promises”, (6) “This store’s behaviour meets my expectations”, and (7) “This store could not care less about servicing a person from Australia”, which were comparable but different from the aforementioned study.

Accordingly, a study by Ganguly et al. (2010) investigated the effects of information, navigation, and visual design on perceived trust and purchase intention across different cultures. Results indicated that the latter factors positively influenced trust and that trust partially mediated the effects on purchase intention. However, Ganguly et al. (2010) did not take colour into consideration. Broeder and Scherp (2017) did investigate the influence of colour on online purchase intention. Results indicated that trust mediates the relationship between colour and online purchase intention.

It seems that consumers rely on visual information rather than textual information during the trust formation phase (McKnight, Choudhury, & Kacmar, 2002). Colours can influence the perception of an online environment, which is why colour might have a direct effect on initial trust formation, which in turn might have an effect on online purchase intention. The following hypothesis is proposed:

H3: Initial trust mediates the relationship between the colour displayed in an online retail environment and online purchase intention. More specifically, displaying blue in an online retail environment elicits more feelings of initial trust compared to displaying red, which in turn leads to higher purchase intentions.

2.6 Cultural Background

Ganguly et al. (2010) emphasized that culture played an important role in affecting the behavioural intentions of consumers in online retail environments. Shared attitudes, norms, and behaviours are perceived as aspects of culture (Triandis, 1995). Hofstede (2018) developed a cross-cultural framework with which different cultures could be evaluated on six dimensions. The present study addresses one of these dimensions, namely uncertainty avoidance. This dimension is related to the willingness to trust others and to the acceptance of a potential risk. Uncertainty avoidance refers to "the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these" (Hofstede, 2018, p. 1). Cultures that score high on uncertainty avoidance feel easily threatened by ambiguous or uncertain situations and are risk averse. The reverse can be stated for cultures that score low on uncertainty avoidance. Beugelsdijk, Maseland, and Hoorn (2015) showed that Hofstede's framework is stable and applicable.

Crijns (2017) investigated the cross-cultural effects of self-disclosure in profile pictures on online booking intention and feelings of trust. Results revealed that high self-disclosure (i.e. not wearing sunglasses) had a positive effect on online booking intention compared to low self-disclosure (i.e. wearing sunglasses). Additionally, consumers that score low on uncertainty avoidance were more inclined to book an accommodation on Airbnb than consumers that score high on uncertainty avoidance. Thus, consumers that score high on uncertainty avoidance perceived more risk when shopping in an online environment (Gunguly et al., 2010). Accordingly, Al Kailani and Kumar (2011) examined the effect of uncertainty avoidance on online purchase intention across three cultures: India, Jordan, and the USA. Results indicated that Jordanians score high on uncertainty avoidance and preferred purchasing products offline instead of online. Hence, cultures that score high on uncertainty avoidance had little online purchase intentions.

Additionally, Singh (2006) found that consumers with different cultural backgrounds focused on different aspects of the website. Colour is an important intrinsic website cue that is perceived differently across cultures. In fact, consumers from different cultures have different colour associations (Aslam, 2006). In a cross-cultural study, Madden, Hewett, and Roth (2000) indicated that blue was generally perceived as the most liked colour across cultures. However, Snijder (2018) did not find a moderating effect of cultural background on the relationship between the colour blue and online booking intention. So, contrasting results have been found.

In a study by Cornelis (2016), self-efficacy, social proof, and uncertainty avoidance were measured as predictors of consumer behaviour. Russian participants had a higher level of uncertainty avoidance compared to Dutch participants. Therefore, it was hypothesized that Russian consumers would be less willing to purchase products online compared to Dutch consumers. Surprisingly, no differences were found the two cultures. Moreover, a parallel study by Steblovskaya (2016), which likewise examined Dutch and Russian consumers, also did not find a moderating effect of uncertainty avoidance on the relationship between Pinterest purchase functionality and online consumer behaviour. In contrast, Van Aken (2016) investigated the effect of user generated content on purchase intention, moderated by cultural background, and found that Russian consumers, who score high on uncertainty avoidance, were less willing to purchase products online compared to Dutch consumers. Likewise, Van Hout (2016) found that Russian consumers were more influenced by strong tie connections within their network and reported a higher level of uncertainty (i.e. buying risk online) than Dutch consumers. Dutch consumers were more likely than Russian consumers to accept new ideas and products. In addition, Dutch consumers were more willing to try something new or different (Van Hout, 2016). All four aforementioned studies compared Dutch with Russian consumers and examined the exact same product, namely a GoPro camera, on different social

media platforms (i.e. Instagram, Facebook, and Pinterest). Notwithstanding, different results were obtained.

Consumers are usually less familiar with purchasing products in online environments compared to offline environments. Therefore, consumers have less trust in online environments (Pelet & Papadopoulou, 2011). It can be argued that consumers in high uncertainty avoidance cultures, compared to consumers in low uncertainty avoidance cultures, need to be convinced more by online retailers in order to establish trust. Trust is an essential component for consumers in high uncertainty avoidance cultures to have before purchasing products online (Hwang & Lee, 2012). For that reason, high uncertainty avoidance cultures might react stronger to cues, such as colour, in an online retail environment that have been found to affect perceived trust. Consumers in low uncertainty avoidance cultures have less trouble trusting an online retail environment and would therefore purchase products online more easily. Therefore, the following hypothesis is proposed:

H4: Cultural background moderates the relationship between the colour displayed in an online retail environment and purchase intention. More specifically, the effect will be more pronounced for high uncertainty avoidance cultures compared to low uncertainty avoidance cultures.

In addition to the present study, five parallel studies examined online consumer behaviour of people from five different cultural backgrounds. In total, three studies compared different Western cultural backgrounds and three studies compared Western with Non-Western cultural backgrounds. All cultural backgrounds were selected based on their levels of uncertainty avoidance according to Hofstede's framework (Hofstede, 2018). France, Greece, Spain, China, Vietnam, and Russia were selected respectively.

3. Method

3.1 Design

The present study was conducted with a 2 (colour: red vs. blue) x 2 (cultural background: Dutch vs. Russian) between-subjects experimental design to test the aforementioned hypotheses. Displayed colour of the online retail environment was used as independent variable, online purchase intention as dependent variable, initial trust as mediating variable, and cultural background as moderating variable. Figure 1 shows the conceptual model.

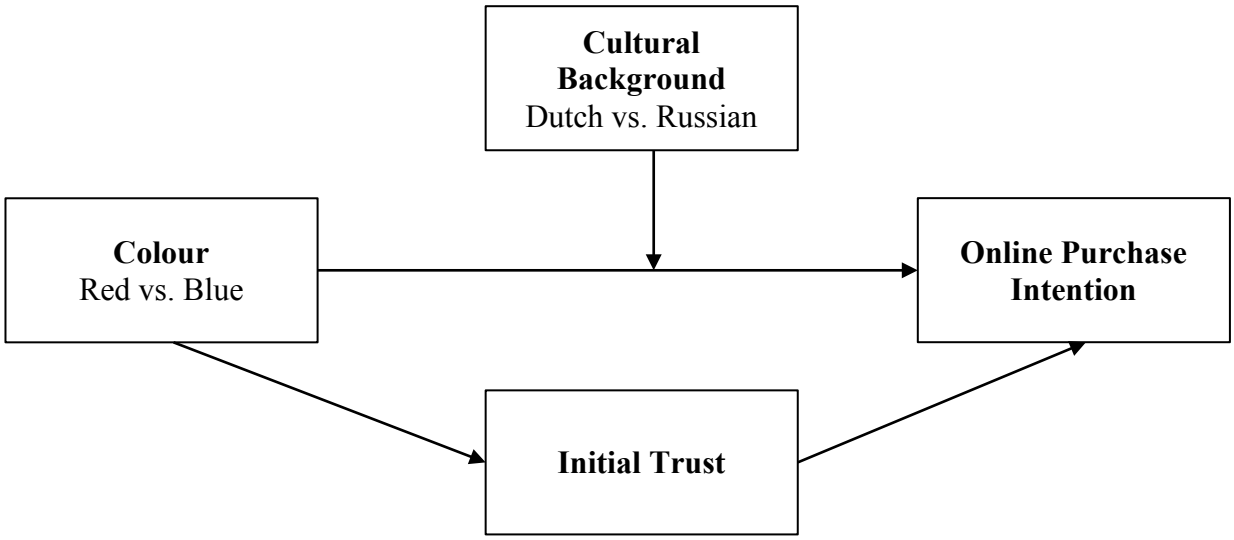


Figure 1. Conceptual model of the present study

There was a close collaboration with five other experts from research group 'Culture Online' during the data collection. Therefore, it should be noted that parts of the questionnaire and scales used in the present study overlap with these studies.

3.2 Participants

One Western and one Non-Western country were examined as representations of the cultures that score low and high on uncertainty avoidance. Accordingly, The Netherlands and Russia were selected because of the substantial difference in the uncertainty avoidance dimension of Hofstede's framework.

With a score of 53 (on a scale of 100), the Netherlands are considered to be a culture with a moderate level of uncertainty avoidance. Dutch people generally feel slightly threatened by ambiguous or unknown situations. However, this moderate level of uncertainty avoidance does not cause Dutch people to avoid all uncertainties. In a society where hard work is the norm and establishing security for oneself is very important, most Dutch people rely heavily on precision and punctuality (Hofstede, 2018). Contrarily, with a score of 95 (on a scale of 100), Russia is considered to be a culture with high levels of uncertainty avoidance. Russians generally feel threatened by unknown or ambiguous situations and avoid taking risks. For that reason, most Russians prefer to have more context and background information (Hofstede, 2018).

Table 1

Cultural Background by Country Living and Country Born (N = 561)

		Country living			
		The Netherlands	Russian	Other	Total
Country born	The Netherlands	247	0	6	253
	Russian	17	245	13	275
	Other	12	11	10	33
Total		277	256	29	561

As Table 1 shows, 561 participants were acquired via a non-probability sampling method that is called convenience sampling. Cultural background was assessed based on participants' indicated feeling of belongingness to the Dutch or Russian ethnic group (e.g. "To what ethnic group do you belong?"). This question represents the key element of a participants' cultural background (Broeder, Stokmans, & Van Wijk, 2012).

Identification with the Dutch or Russian ethnic group was compulsory. Participants that did not identify themselves with as either Dutch or Russian were excluded from the analysis ($N = 25$). In addition, participants that did not complete the online survey ($N = 109$), participants that were not born in the Netherlands or Russia ($N = 13$), participants that did not live in the pertinent countries (e.g. Belgium, Belarus, Azerbaijan, and Uzbekistan) ($N = 12$), and participants whose identified ethnic group did not match with the country they live in or were born in ($N = 11$) were also excluded from the analysis. Hence, only participants that completely matched with the self-identification country were analysed in the present study (i.e. a participant who lives in Russia, was born in Russia, and identifies with the Russian ethnic group completely matches with the self-identification country and was used in the present study. In addition, a participant who lives in The Netherlands, was born in The Netherlands, and identifies with the Dutch ethnic group was also used). Although the regions within the countries were not taken into account, the researchers network mostly consists of people from the Southern part of the Netherlands. Therefore, it should be noted that Dutch participants were acquired from the South. However, Russian participants did not come from a specific region. Decathlon Russia, which consists of 14 stores throughout the whole country, was, among others, used to acquire Russian participants.

In total, 391 participants (158 male and 233 female) with a mean age of 26.63 (SD = 9.44) completed a self-administered online Qualtrics survey. Among the participants, 196 belonged to the Dutch ethnic group and 195 to the Russian. The participants were predominantly higher educated ($N = 119$) or had a university background ($N = 159$). Table 2 shows that the Russian participants were slightly higher educated than the Dutch participants. This may be due to the fact that there is no difference between higher education and university in Russia. Finally, participants were randomly assigned to one of the two experimental conditions. Between the two conditions, participants were equally distributed.

Table 2

Distribution of Participants by Educational Level and Cultural Background (*N* = 391)

		Cultural background		
		Dutch	Russian	Total
Educational level	Elementary school	2 (1%)	0 (0%)	2 (0.5%)
	High school	24 (12.2%)	38 (19.5%)	62 (15.9%)
	Middle level education	34 (17.3%)	15 (7.7%)	49 (12.5%)
	Higher education	89 (45.4%)	30 (15.4%)	119 (30.4%)
	University	47 (24%)	112 (57.4%)	159 (40.7%)
Total		196 (100%)	195 (100%)	391 (100%)

3.3 Materials

The stimuli, used in the present study as well as in the parallel studies, were created based on a framework constructed by Broeder (2018). As Figure 2 shows, three components can be distinguished, namely: (1) context information, (2) product, and (3) web shop background. Both the product and the web shop background were exactly the same in the two experimental conditions. Solely the context information varied. The final stimuli are displayed in Figure 3 and can be found in Appendix B.

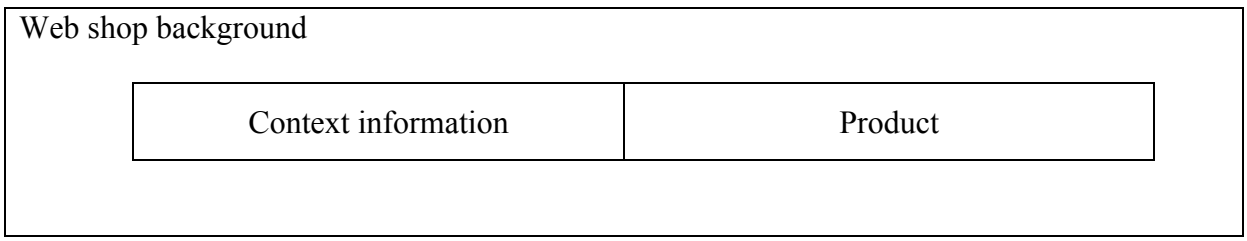


Figure 2. Stimuli framework Broeder (2018)

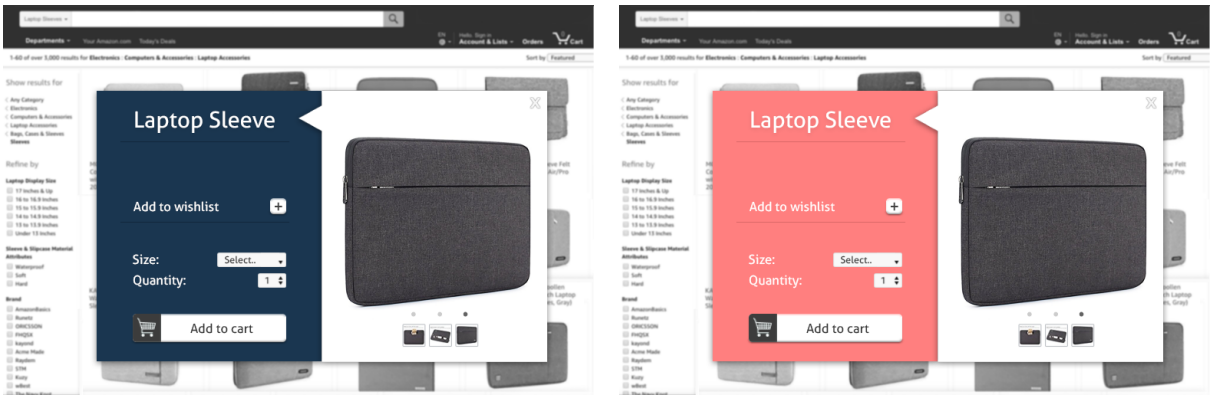


Figure 3. Final stimuli dark blue condition and light red condition

Web shop Background. The online retail environment of the web shop 'Amazon' was used, which increased the external validity of the online questionnaire. Amazon is the largest Internet retailer in the world and is specialised in e-commerce. To fit the aim of the present study, the researcher adapted the web shop. No elements were added to the online retail environment. However, in order to minimize the effects of recognition, some elements were deleted. The brand name, the price, the rating, and the country of the website visitor were deleted consecutively. As a result, it should not be possible for participants to associate the stimuli background with Amazon, since this would bias the results. In addition, the web shop background colours were adjusted to black and white in order to make sure that the background did not distract participants. Next to that, the web shop background was blurred to ensure that participants could not be distracted by the remaining text.

On the web shop background a popup message that offered a product and some information about it were shown. Again, no reviews or product information that could bias the results were added to the popup message. Though, the message did contain selection bars to select the size and quantity of the displayed product. Additionally, an 'add-to-cart'-button was added to ensure that the online retail environment was as realistic as possible.

Context Information. Since the present study is a replication study, the used colours for the context information were the same as in the previous studies of Snijder (2018) and Wildeman (2018). The dark blue condition of Snijder (2018) and the light red condition of Wildeman (2018) were selected due to their significant effects. As a result, for the blue condition the colour code #1A3650 was chosen and for the red condition the colour code #FF7F7F was chosen. These colours were used to manipulate the stimuli context information and serve as experimental conditions in the present study.

Product. The displayed product was a laptop sleeve. Some criteria were taken into account to select this product, namely the product had to be of (1) low personal relevance, (2) culture-neutral, and (3) gender-neutral. Similarly to the web shop background, no brand name of the laptop sleeve was visible to overcome brand associations. In addition, it should have been clear for the participants that the laptop sleeve would fit all laptop sizes, regardless of the size or brand. Moreover, a neutral (i.e. grey) colour of the laptop sleeve was preferred to ensure that this colour would not affect participants' intentions to purchase the product.

3.4 Instrumentation

Before the initial questions started, participants were shown a short text that included information and instructions about the survey, insurance that the data would be handled anonymously, and contact information of the researcher in case there were questions or remarks about the study. Overall, a study by Broeder (2018) was used to compile the questionnaire. The complete questionnaire can be found in Appendix A.

Demographics. The questionnaire started with some socio-demographic questions regarding the participants' gender, age, and educational level. In addition, some questions regarding the ethnicity of the participants were included, namely (1) "In what country do you live at the moment?", (2) "What country were you born in?", and (3) "To what ethnic group do you belong?" (Broeder, Stokmans, & van Wijk, 2012).

Purchase intention. Participants were exposed to a visual of an online environment that depicted a laptop sleeve. They were then asked to imagine that they were looking for a simple laptop sleeve and to respond to the following statement: "I would like to buy this product" on a 5-point completely (dis)agree scale. This statement was used in multiple previous studies on purchase/booking intention in an online environment (e.g. Snijder, 2018).

Hedonic attitude. Participants were asked to indicate their hedonic attitude towards the product by responding to two items, which were measured on a 5-point semantic differential scale. The items were recoded before they were used in the analysis. The hedonic function scale contained the following items: 'Enjoyable – Irritating' and 'Fun – No fun'.

Utilitarian attitude. Participants were also asked to indicate their utilitarian attitude towards the product. This was done to determine whether the utilitarian attitude of the participants towards the product was higher than their hedonic attitude, indicating a low involvement product. The utilitarian function scale also contained two items that were measured on a 5-point semantic differential scale: 'Informative – Not informative' and 'Useful – Pointless'.

Originally, the attitude scales contained more items. However, the scales were shortened since the experts from research group 'Culture Online' evaluated not all the items as relevant for the used product. Since the hedonic and utilitarian attitude scales only contained two items each, no reliability was reported.

Trustworthiness. In addition, one item that addressed the attitudes of the participants towards the product was added to the hedonic and utilitarian attitude scales. This item was also measured on a 5-point semantic differential scale and consists of the following: 'Trustworthy – Untrustworthy'.

Product attitude. The hedonic attitude, utilitarian attitude, and trustworthiness scales were combined to form one general product attitude scale. Therefore, the product attitude

scale consisted of five items (i.e. two hedonic attitude items, two utilitarian attitude items, and one attitude item regarding trustworthiness). The reliability was acceptable (α = .67).

Initial trust. Trust in a particular e-vendor (i.e. initial trust) was operationalized using items from Chen and Barnes (2007). These items were also used by Snijder (2018) and were adapted for the present study. The original items include double-barrelled items, which means that an item touches upon more than one statement, yet allows only one answer (e.g. "This website is trustworthy and honest"). Consequently, these items were split into two separate items. The 5-point scale (completely (dis)agree) used in the present study therefore consisted of five items, namely (1) "This website is trustworthy", (2) "This website is honest", (3) "This website keeps my best interests", (4) "This website is secure", and (5) "This website is reliable". The scale had a good reliability (α = .82).

Institutional trust. Next to initial trust, Snijder (2018) measured another sub construct of trust named institutional trust. Institutional trust measures a participant's general trust in an online environmental structure. One institutional trust item from Chen and Barnes (2007) was added as a control item in the present study, namely: "Prior online purchase experiences from other websites make me feel comfortable in using this website". Selection of this control item was done in accordance with Snijder (2018).

Dispositional trust. Another sub construct of trust, named dispositional trust, measures a participant's propensity to trust other people. It should be noted that showing a colour cannot change a participant's personality. Therefore, one dispositional trust item was selected as a control item in accordance with Snijder (2018): "It is easy for me to trust a person".

Trust. All seven items of the three sub constructs of trust (i.e. initial, institutional, and dispositional trust) were combined to compute one mean score for general sense of trust for each participant individually. This scale had a good reliability (α = .79).

Uncertainty avoidance. Two different cultural backgrounds, with distinct levels of uncertainty avoidance, were examined and compared in the present study, namely Dutch (culture with low levels of uncertainty avoidance) and Russian (culture with high levels of uncertainty avoidance) cultural backgrounds. To measure the level of uncertainty avoidance of the participants, a scale by Jung and Kellaris (2004) was adapted. The scale originally contains seven items measured on a 7-point scale (completely (dis)agree). However, the scale was adapted to a 5-point scale (completely (dis)agree) for the present study. The seven uncertainty avoidance items stated the following: (1) "I tend to get anxious easily when I don't know an outcome", (2) "I don't like ambiguous situations", (3) "I feel stressful when I cannot predict consequences", (4) "I believe that rules should not be broken for mere pragmatic reasons", (5) "I prefer structured situations to unstructured situations", (6) "I would not take risks when an outcome cannot be predicted", and (7) "I prefer specific instructions to broad guidelines". The reliability of the scale was good (α = .73).

Online shopping experience. The online shopping experience of the participants was assessed in order to gain more knowledge about participants' previous usage of online retail environments. Participants had to indicate their level of agreement on a 5-point scale (completely (dis)agree) to two statements that served as control statements: (1) "I am familiar with purchasing products online" and (2) "I have good experiences with purchasing products online".

Manipulation check. Participants were exposed to six squares in different colours and hues. They were asked to indicate which colour they associated the most with trust, emotion, and exclusivity. Trust was measured in the present study; two other experts from research group 'Culture Online' measured emotion and exclusivity. Participants could choose from the colours light red and dark blue used in the present study, but also from the colours red, blue, and yellow, used in the studies done by the aforementioned experts. Black was added to the

options since it was assumed that black could be associated with exclusivity (Muhammed, 2018).

Lastly, to ensure that the participants were aware of the background colour that was used in the depicted online environment, they were asked: “What was the background colour of the images in this questionnaire?”. Participants could choose between the two colours of the experimental conditions (i.e. light red and dark blue).

3.5 Pilot Studies

Among others, experts from research group ‘Culture Online’ created, revised, and discussed the final stimuli, as well as the questionnaire, while working closely together. These experts from Tilburg University are specialized in Business Communication and Digital Media. Two experts from the research group used the same stimuli in their investigation as the stimuli that was used in the present study, while all the experts had a comparable questionnaire.

A small pre-test was conducted to ensure that the software worked properly, the survey was easy to understand, and to identify possible ambiguous questions. Before that, six experts on persuasive communication verified the used colours. In addition, three of them evaluated the stimuli that were used in the present study. These experts indicated that the online retail environment was neutral and that the product was gender-neutral, which made the stimuli suitable for the purpose of the present study. Participants could not have been influenced by the colour of the laptop sleeve since this colour was perceived to be neutral. Furthermore, the experts confirmed that blue is indeed the colour that is associated with trust for most people. In addition, a size-button was added to the stimuli to assume that participants could get any size they want. For this reason, it was not necessary to state that the laptop sleeve would fit all laptops.

Eight people were asked to participate in the pre-test of the survey. They provided feedback and uncovered problems with the used software. Participants were assembled via the network of the researcher. Of these participants, two were experts in the field of Communication and Information Sciences. The other six participants had no prior knowledge about this topic and focussed on the wording of the items. Apart from adding a sentence about keeping the answers anonymous and confidential, changing a few wordings, and deleting some items that did not refer to the used product, no big changes were made. Since the scales used in the present study had to be similar to the scales used by the other five experts, not all provided feedback could be processed. The complete expert reviews can be found in Appendix C.

3.6 Procedure

The online survey software Qualtrics was used to gather data via an anonymous survey link. Qualtrics generated this link that was distributed among participants. As can be seen in Table 3, the distribution of participants by cultural background, condition, and gender was controlled for on a regular basis. This was done in order to ensure that the distribution was equivalent. Participants were randomly assigned to one of the two experimental conditions. Participation in the investigation was completely voluntary and anonymous. It took about four minutes to complete the survey. It should be noted that the survey was only generated and distributed in English.

Table 3

Distribution of Participants by Cultural Background, Gender, and Condition (N = 391)

		Condition		
		Blue	Red	Total
Cultural Background				
Dutch	Male	37	40	77
	Female	59	60	119
	Total	96	100	196
Russian	Male	41	40	81
	Female	54	60	114
	Total	95	100	195
Total	Male	78	80	158
	Female	113	120	233
	Total	191	200	391

Various social media channels were deployed in order to collect Dutch participants. Friends and family were personally asked, via Facebook Messenger and WhatsApp, to complete the survey. Additionally, they were asked to share the survey with two or three people within their network. Next to that, Russian participants were assembled via Dutch people within the researchers network who have Russian acquaintances. Likewise, the survey link was distributed via Facebook Messenger and WhatsApp. Since this did not result in attaining enough Russians, other social media channels were used. Consequently, the survey was disseminated in various (Russian) online communities (e.g. LinkedIn and VKontakte). VKontakte is a Russian online social medium and social networking service. Via this medium it was noticed that not a lot of Russians speak English properly. Various Russians indicated

this themselves beforehand and were therefore not suitable to participate in the investigation. For this reason, it was decided to use the language exchange app called Tandem. Via this app, Russian people were personally contacted to complete the online survey. The profiles of the Tandem users show where the users live, which languages they speak, and, most importantly, their levels of English. Consequently, Russian users with an English level that is above average were asked to complete the survey themselves and to distribute the survey within their own network. In addition, via personal contacts of the researcher with Decathlon Netherlands, the head office of Decathlon Russia was approached in order to gather more Russian participants. The survey was subsequently distributed via the social network site Google+, which is used as the internal mean of communication in the international company.

4. Results

Statistical analyses were conducted in order to test the hypotheses formulated in the theoretical framework. Additional analyses were performed to investigate possible effects that could explain the results from the main analyses. The complete statistical reports of the mediation and moderation analysis can be found in Appendix D.

4.1 Descriptive Statistics

The mean scores of all the main variables used in the present study, separated by experimental condition, can be found in Table 4. No floor or ceiling effects are shown by the results. Since no extreme standard deviations were present it can be stated that the outliers did not cause the significant findings.

Scores on purchase intention ($Z_{skweness}$ = -3.59, $Z_{kurtosis}$ = -1.77), colour ($Z_{kurtosis}$ = -8.16), cultural background ($Z_{kurtosis}$ = -8.17), initial trust ($Z_{kurtosis}$ = 3.52), institutional trust ($Z_{skweness}$ = -2.83), and dispositional trust ($Z_{skweness}$ = -2.01, $Z_{kurtosis}$ = -3.07) were not normally distributed. Therefore, bootstrapping was performed during subsequent analyses.

A paired samples *t*-test was performed to test if participants' hedonic and utilitarian attitude towards the product differed significantly. The results show that, in total, participants significantly evaluated the depicted product higher on utilitarian product attitude ($M = 3.33$, $SD = 0.95$) than on hedonic product attitude ($M = 2.99$, $SD = 0.87$), $t(390) = -6.28$, $p < .001$. This indicates that the laptop sleeve is perceived as a low involvement product.

Table 4

Means (5-point scale) of all the Variables, Separated by Condition

	Condition		
	Light red ($N = 200$)	Dark blue ($N = 191$)	Total ($N = 391$)
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
Purchase Intention	3.24 (0.95)	3.24 (0.99)	3.24 (0.97)
Product Attitude	3.26 (0.67)	3.23 (0.72)	3.24 (0.69)
Hedonic Attitude	3.08 (0.87)	2.89 (0.87)	2.99 (0.87)
Utilitarian Attitude	3.27 (0.91)	3.40 (0.98)	3.33 (0.95)
Trustworthiness	3.58 (1.00)	3.59 (0.99)	3.58 (1.00)
Trust	3.26 (0.58)	3.25 (0.52)	3.25 (0.55)
Initial Trust	3.23 (0.62)	3.28 (0.58)	3.25 (0.60)
Institutional Trust	3.41 (0.95)	3.34 (0.84)	3.37 (0.90)
Dispositional Trust	3.22 (0.96)	3.05 (0.99)	3.14 (0.98)
Uncertainty Avoidance	3.24 (0.62)	3.27 (0.57)	3.26 (0.59)
Online Shopping Experience	4.05 (0.79)	4.03 (0.75)	4.04 (0.77)

To test if participants differed significantly between the experimental conditions, a One-Way ANOVA was performed. On average, participants that were exposed to the light

red condition (M = 3.24, SD = 0.95) and dark blue condition (M = 3.24, SD = 0.99) had a similar purchase intention. The utilitarian attitude was higher in the dark blue condition (M = 3.40, SD = 0.98) than in the light red condition (M = 3.27, SD = 0.91). However, this difference was not significant. In contrast, the hedonic attitude was significantly higher in the light red condition (M = 3.08, SD = 0.87) than the dark blue condition (M = 2.89, SD = 0.87), $F(1, 389) = 0.10$, $p = .033$. Likewise, dispositional trust was significantly higher in the light red condition (M = 3.22, SD = 0.96) than in the dark blue condition (M = 3.05, SD = 0.99), $F(1, 389) = 2.89$, $p = .090$.

Table 5 shows a shows a summary of the means scores and their standard deviation for all variables, separated by cultural background. Again, no floor or ceiling effects were detected.

To test if participants differed significantly between the cultural backgrounds, a One-Way ANOVA was performed. On average, Dutch participants had a significantly higher purchase intention (M = 3.39, SD = 0.92), than Russian participants (M = 3.08, SD = 1.00), $F(1, 389) = 10.28$, $p < .001$. Surprisingly, Russian participants had a significantly higher level of trust in the environment (M = 3.32, SD = 0.54) compared to the Dutch participants (M = 3.19, SD = 0.56), $F(1, 389) = 5.87$, $p = .016$. Moreover, Russian participants had significantly higher feelings of initial trust (M = 3.34, SD = 0.56) than Dutch participants (M = 3.17, SD = 0.63), $F(1, 389) = 8.31$, $p = .004$. When comparing the mean scores for uncertainty avoidance, it can be observed that Russian participants (M = 3.39, SD = 0.59) induced a higher level of uncertainty avoidance compared to the Dutch participants (M = 3.12, SD = 0.57). This difference was significant, $F(1, 389) = 20.89$, $p < .001$. Consequently, Dutch participants had significantly more experience with purchasing products online (M = 4.21, SD = 0.65) than the Russian participants (M = 3.86, SD = 0.84), $F(1, 389) = 21.42$, $p < .001$.

Table 5

Means (5-point scale) of all Variables, Separated by Cultural Background

	Cultural background		
	Dutch (*N* = 196)	Russian (*N* = 195)	Total (*N* = 391)
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)
Purchase Intention	3.39 (0.92)	3.08 (1.00)	3.24 (0.97)
Product Attitude	3.28 (0.62)	3.20 (0.76)	3.24 (0.69)
Hedonic Attitude	3.04 (0.77)	2.93 (0.96)	2.99 (0.87)
Utilitarian Attitude	3.34 (0.88)	3.32 (1.01)	3.33 (0.95)
Trustworthiness	3.65 (0.85)	3.51 (1.12)	3.58 (1.00)
Trust	3.19 (0.56)	3.32 (0.54)	3.25 (0.55)
Initial Trust	3.17 (0.63)	3.34 (0.56)	3.25 (0.60)
Institutional Trust	3.33 (0.93)	3.41 (0.87)	3.37 (0.90)
Dispositional Trust	3.14 (0.93)	3.14 (1.02)	3.14 (0.98)
Uncertainty Avoidance	3.12 (0.57)	3.39 (0.59)	3.26 (0.59)
Online Shopping Experience	4.21 (0.65)	3.86 (0.84)	4.04 (0.77)

At the end of the online survey, participants were asked to indicate which colour they associated the most with trust. Overall, blue was associated the most with trust. As can be seen in Table 6, 38.6% associated blue with trust. Dark blue, investigated in the present study, was the second highest colour value that was associated with trust. There were no big differences between the Dutch and Russian participants regarding their colour association.

Table 6

Colour Associations with Trust, Separated by Cultural Background (*N* = 391)

		Cultural background		
		Dutch	Russian	Total
Colour association	Dark blue	44 (22.4%)	60 (30.8%)	104 (26.6%)
	Blue	83 (42.3%)	68 (34.9%)	151 (38.6%)
	Light red	27 (13.8%)	29 (14.9%)	56 (14.3%)
	Red	15 (7.7%)	7 (3.6%)	22 (5.6%)
	Yellow	17 (8.7%)	9 (4.6%)	26 (6.7%)
	Black	10 (5.1%)	22 (11.3%)	32 (8.2%)
Total		196 (100%)	195 (100%)	391 (100%)

As a manipulation check, participants were asked what background colour they saw in the online survey. As Table 7 shows, for the dark blue condition, most participants were aware of the background colour and indicated the correct colour (82.2%). However, 38.5% of the participants in the light red condition indicated to have seen the dark blue colour, which is an interesting finding.

Table 7

Participants Indicated Background Colour, Separated by Colour Condition (*N* = 391)

		Actual colour condition		
		Light red	Dark blue	Total
Indicated colour	Light Red	123 (61.5%)	34 (17.8%)	157 (40.2%)
	Dark blue	77 (38.5%)	157 (82.2%)	234 (59.8%)
Total		200 (100%)	191 (100%)	391 (100%)

As can be seen in Table 8, most of the variables used in the present study were correlated with each other. For example, initial trust is positively correlated with purchase intention, which indicates that a higher perceived trustworthiness of a website could result in a higher online purchase intention. In turn, participants that were familiar with purchasing products online indicated to have a higher purchase intention. Multicollinearity is not suspected by the correlations.

Table 8

Correlations for all variables used in the present study

	1.	**2.**	**2a.**	**2b.**	**2c.**	**3.**	**3a.**	**3b.**	**3c.**	**4.**	**5.**
1. Purchase Intention	1										
2. Product Attitude	**.394**	1									
2a. Hedonic Attitude	**.278**	**.731**	1								
2b. Utilitarian Attitude	**.313**	**.821**	**.298**	1							
2c. Trustworthiness	**.287**	**.636**	**.225**	**.430**	1						
3. Trust	**.327**	**.321**	**.175**	**.269**	**.296**	1					
3a. Initial Trust	**.315**	**.351**	**.189**	**.297**	**.324**	**.946**	1				
3b. Institutional Trust	**.243**	**.139**	.051	**.136**	**.134**	**.665**	**.511**	1			
3c. Dispositional Trust	**.111**	.071	.071	.034	.060	**.460**	**.223**		1		
4. Uncertainty avoidance	**.135**	.078	.056	.054	.071	**.117***	**.126***	.092	-.007	1	
5. Online Shopping Experience	**.172**	.000	-.050	-0.15	**.118***	.077	.027	**.103***	**.128***	.007	1

Note. $N = 391$ for all variables. Boldface* correlations are significant at $p < .05$ level (2-tailed) and only boldface correlations are significant at $p < .01$ level (2-tailed).

4.2 Test of Hypotheses

4.2.1 The effect of colour on online purchase intention, mediated by trust. Colours differ in their influence on online purchase intention, which is stated in Hypothesis 1. More specifically, displaying the colour blue in an online retail environment would result in greater purchase intentions compared to displaying the colour red. A mediation analysis with PROCESS model number 4 procedures developed by Preacher and Hayes (Hayes, 2018) was used to test this effect. In this mediation analysis, colour was entered as independent variable, online purchase intention as outcome variable, and initial trust, institutional trust, and dispositional trust as mediators. The mediation model is displayed in Figure 4.

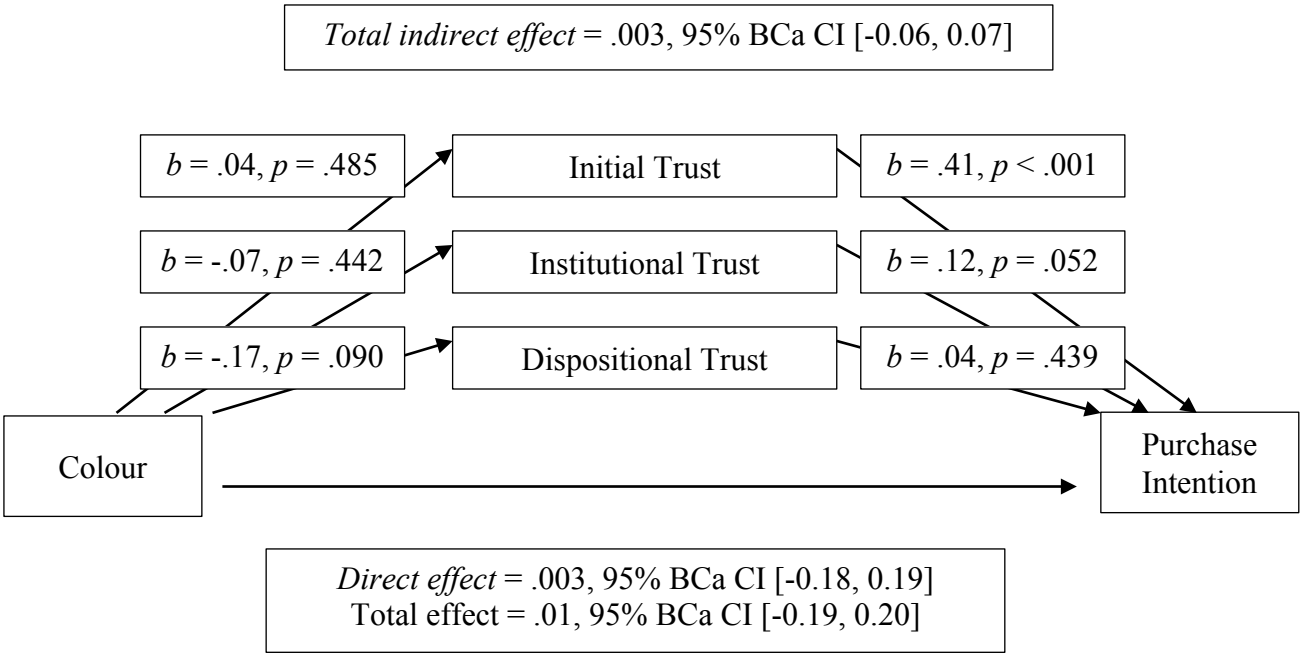


Figure 4. Model of colour as a predictor of purchase intention, mediated by perceived trust

As can be seen, there was no significant total effect of colour on online purchase intention (*b* = .01, *SE* = 0.10, *p* = .953), stating that displaying the colour blue does not result in higher purchase intentions compared to displaying the colour red. Therefore, hypothesis 1 was rejected.

Next to that it was hypothesized that displaying the colour blue in an online retail environment would be perceived as more trustworthy compared to displaying the colour red (Hypothesis 2). As can be seen in Figure 4, colour was not significantly related to initial trust (b = .04, SE = 0.06, p = .485), indicating that displaying the colour blue in an online retail environment does not provide more trust in the e-vendor than displaying the colour red. For that reason, the results did not find support for the second hypothesis.

Figure 4 was used again to investigate whether there may be an effect of colour on online purchase intention that can be explained by initial trust. Institutional trust and dispositional trust were included in the analysis as a control. Initial trust was significantly related to online purchase intention, b = .51, SE = 0.08, p < .001, indicating that higher levels of initial trust are related to higher purchase intentions. However, neither institutional trust nor dispositional trust had an effect in the model. There was also no significant total effect of colour on purchase intention and this effect did not change when the mediators were added to the model, the direct effect was b = -.02, SE = 0.09, p = .866. The total indirect effect was also not significant (b = .02, SE = 0.03, 95% BCa CI [-0.03, 0.09]). For that reason, it is not allowed to interpret the individual indirect effects.

Given these results it can be concluded that initial trust cannot explain the relationship between the colours displayed in an online retail environment and online purchase intention. More specifically, displaying blue in an online retail environment does not elicit more feelings of initial trust compared to displaying red, which in turn does not lead to higher purchase intentions. Therefore, hypothesis 3 was rejected.

4.2.2 The moderating effect of cultural background. A pre-test was conducted to test the fourth hypothesis, stating that cultural background would moderate the relationship between colour and online purchase intention. Since Dutch and Russian participants have, according to Hofstede (2018), different levels of uncertainty avoidance, their scores on the

uncertainty avoidance scale were expected to be different. Two different scales measured uncertainty avoidance and cultural background. Therefore, the participants should score differently on the uncertainty avoidance scale to establish if cultural background could be imported as moderator. Since Levene's test was not significant, equal variances were presumed F (1, 389) = 0.04, p = .839).

Results of the independent samples t-test show that, on average, Russian respondents had higher levels of uncertainty avoidance (M = 3.39, SD = 0.59) compared to Dutch respondents (M = 3.12, SD = 0.57). This difference was significant, t(389) = -4.57, p < .001, 95% BCa [-.38, -.15], indicating that cultural background could be used as moderating variable.

In order to explore the moderating effect of cultural background, a moderation analysis with the use of PROCESS model number 1 (Hayes, 2018) was performed. Cultural background was entered as moderating variable, colour as independent variable, and online purchase intention as dependent variable. It was hypothesized that cultural background would moderate the relationship between the colours displayed in an online retail environment and online purchase intention. More specifically, the effect would be more pronounced for high uncertainty avoidance cultures (i.e. Russia) compared to low uncertainty avoidance cultures (i.e. The Netherlands).

Table 9 shows the outcome of the regression model. The overall model was significant, R^2 = .03, F(3, 387) = 3.72, p = .012. Cultural background appeared to be a significant predictor of online purchase intention as a significant main effect was found (b = -.31, p = .002). Dutch participants were more inclined to purchase the product (M = 3.39, SD = 0.92) compared to Russian participants (M = 3.08, SD = 1.00). However, colour had no significant main effect on online purchase intention. Additionally, there was also no predicted interaction effect between cultural background and colour on online purchase intention.

Table 9

Linear model of predictors of online purchase intention

	b [95% CI]	SE	*t*	*p*
Constant	3.24 [3.14, 3.33]	0.05	66.37	< .001
Cultural Background (centred)	-.31 [-0.50, -0.12]	0.10	-3.18	.002
Colour (centred)	.01 [-0.19, 0.20]	0.10	0.05	.959
Cultural Background x Colour	-.21 [-0.59, 0.18]	0.20	-1.06	.292

Note. $N = 391$. Bootstrap sample size = 1,000.

As can be seen in Figure 5, purchase intention for the Dutch participants was higher in the blue condition ($M = 3.45$, $SD = 0.92$) than in the red condition ($M = 3.34$, $SD = 0.92$). In contrast, purchase intention for the Russian participants was higher in the red condition ($M = 3.13$, $SD = 0.97$) than in the blue condition ($M = 3.03$, $SD = 1.03$). However, there is not sufficient evidence in the dataset to conclude that there is a moderating effect of cultural background in the population. Therefore, hypothesis 4 was rejected, indicating that cultural background does not moderate the relationship between the colours displayed in an online retail environment and online purchase intention.

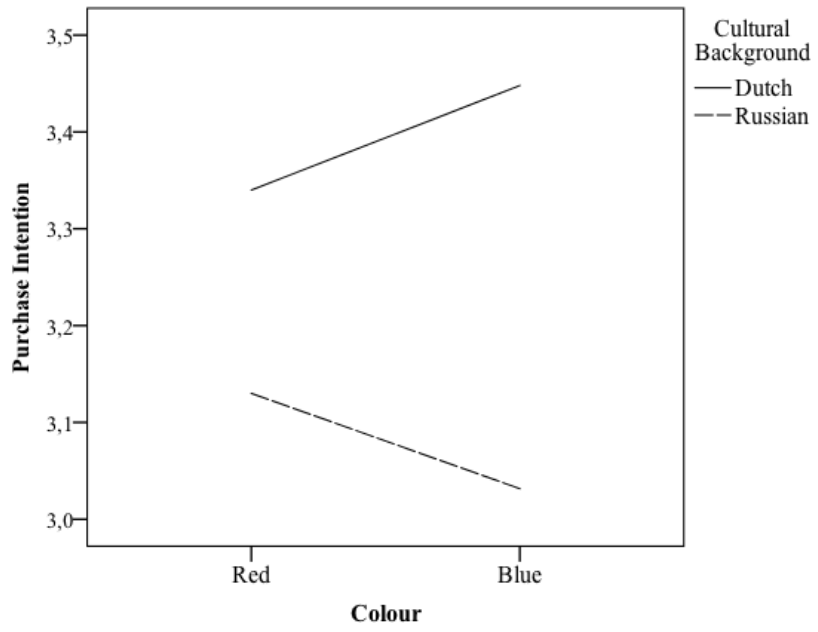


Figure 5. Model of colour on online purchase intention, moderated by cultural background

More specifically it was hypothesized that the moderating effect would be more pronounced for high uncertainty avoidance cultures (i.e. Russia) compared to low uncertainty avoidance cultures (i.e. The Netherlands). To declare the insignificant moderating effect of cultural background, while the overall model was significant, a second moderation analysis was performed, with colour as independent variable, purchase intention as dependent variable, and uncertainty avoidance as moderator.

Table 10

Linear Model of Predictors of Purchase Intention

	b [95% CI]	SE	*t*	*p*
Constant	3.24 [3.14, 3.34]	0.05	65.97	< .001
Uncertainty Avoidance (centred)	.22 [0.04, 0.39]	0.09	2.43	.016
Colour (centred)	-.001 [-0.19, 0.19]	0.10	0.05	.959
Uncertainty Avoidance x Colour	-.08 [-0.44, 0.27]	0.18	-0.47	.641

Note. $N = 391$. Bootstrap sample size = 1,000.

The outcome of the second regression model is presented in Table 10. Surprisingly, the overall model was not significant, $R^2 = .02$, $F(3, 387) = 2.11$, $p = .099$, which is in contrast with the significant overall model of cultural background. However, uncertainty avoidance appeared to be a predictor of online purchase intention as a significant main effect was found ($b = .22$, $p = .016$). Participants with low levels of uncertainty avoidance were more inclined to purchase products online compared to participants with high levels of uncertainty avoidance. However, in line with the no significant main effect found in testing the moderating effect of cultural background, colour had no significant main effect on online purchase intention. Additionally, there was also no predicted interaction effect between uncertainty avoidance and colour on online purchase intention, indicating that uncertainty avoidance is not a cultural dimension that moderates the relationship between the colour

displayed in an online retail environment and purchase intention. Thus, Dutch (low uncertainty avoidance) consumers are more likely to purchase online than Russian (high uncertainty avoidance) consumers, regardless of the colour they were exposed to.

5. Discussion

The purpose of the present study was to examine the effect of initial trust on the relationship between colour and online purchase intention. The present study was done in the context of an online retail environment displaying a low involvement product, namely a laptop sleeve. In addition, a possible moderating effect of cultural background on the relationship between the colours displayed in an online retail environment and purchase intention was examined. The present study was set out to investigate what could corroborate the premise that blue engenders the most trust, stated by Broeder and Scherp (2017), combines the studies of Snijder (2018) and Wildeman (2018), and made an attempt to replicate the findings of Snijder (2018). Four hypotheses were tested using data from an online survey among 391 participants with Western (i.e. Dutch) and Non-Western (i.e. Russia) cultural backgrounds. Next, a summary of the results acquired in the present study and their limitations, theoretical implications, and future research suggestions were considered.

5.1 Theoretical Discussion of the Results

Generally, the colour blue is found to have a positive effect on online purchase intention (Cyr et al., 2010). Therefore, it was hypothesized that displaying the colour blue in an online retail environment would result in higher purchase intentions compared to displaying the colour red. However, displaying the colour blue did not result in higher purchase intentions compared to displaying the colour red. This finding is in line with a study by Snijder (2018), which also found no relationship between the colour blue and online booking intention. However, Broeder and Scherp (2017) did found a direct effect of colour on

online purchase intention. An explanation for these opposing findings can be found in the fact that different products were used in the aforementioned studies. While Broeder and Scherp (2017) used a digital camera, Snijder (2018) used a Airbnb room, and the present study used a laptop sleeve. Therefore, it may be argued that the effect of colour on online purchase intention depends on the type of product that is depicted in the online environment.

Hence, Snijder (2018) stated that the effect of colour might be stronger in an environment that depicts a low involvement product compared to an environment that depicts a high involvement product. The attractiveness of the online environment is more important for a low involvement product than for a high involvement product (Rahman, 2018). The present study examined a laptop sleeve, which is perceived as a low involvement product that results in the peripheral route of the Elaboration Likelihood Model (Petty & Cacioppo, 1983). However, since no effect of colour on online purchase intention was found for the investigated low involvement product in the present study, and Snijder (2018) also did not find an effect for the investigated high involvement Airbnb room, it may be stated that the effect of colour is not stronger for utilitarian products (i.e. low involvement) than for hedonic products (i.e. high involvement) in online (retail) environments. Though, it is not entirely certain that the product was of low personal relevance for all the participants.

Another possible explanation can be found in a study by Cyr et al. (2010), which argued that the effect of a consumer's general colour appeal might overrule ones general association between a colour and a construct such as trust or purchase intention (e.g. due to a positive experience with the colour green, a consumer might associate the colour green stronger with trust compared to the colour blue). Additionally, the present study used a controlled online retail environment in the online survey. No real online retail environment was used. For that reason, participants could have focused on other aspects than the stimuli while completing the online survey.

Cyr et al. (2010) indicated that the colour blue is associated with trust. In addition, a cross-cultural study by Aslam (2006) also revealed that the colour blue is positively associated with trust. However, Broeder and Scherp (2017) emphasized that additional empirical research is needed to corroborate the premise that blue is the colour that engenders the most trust, since no relationship between the colour blue and purchase intention was found. Recently, Snijder (2018) corroborated on this premise, nevertheless, the researcher did also not find support. To corroborate the premise, and since the colour blue overall produces more positive outcomes than the colour red (Bellizi & Hite, 1992), it was hypothesized that an online retail environment displaying the colour blue would be perceived as more trustworthy compared to an online retail environment displaying the colour red. The present study did not find support for this hypothesis, and thus did not corroborate the premise that blue engenders the most trust. An explanation for this finding can, again, be found in the study by Cyr et al. (2010), which emphasized a strong effect of colour preference on trust and satisfaction. It could be argued that a consumers' personal preference with regard to a displayed colour in an online retail environment has a substantially bigger effect than is thought at first. However, as suggested by Aslam (2006), colour perception is an unconscious process. For that reason, the displayed colours in the online retail environment might have affected participants without them being aware of it.

Still, consumers rely on visual information rather than textual information in the trust formation phase (McKnight et al., 2002). According to McKnight and Chervany (2001), trust consists of three sub constructs, namely: (1) initial trust, (2) institutional trust, and (3) dispositional trust, which can me measured separately. Snijder (2018) investigated those sub constructs separately and found a mediating effect of initial trust on the relationship between the colour dark blue and online booking intention. No effect was found for the sub constructs institutional and dispositional trust. In fact, this is considered as logical since showing a

colour in an online retail environment cannot change a participant's personality in such a way that the participant propensity to trust other people will be bigger after being exposed to a blue coloured online retail environment. Consequently, colour displayed in an online retail environment cannot have a direct influence on institutional and dispositional trust. However, colour can have a direct influence on web shop atmospherics, which could enhance feelings of initial trust. Therefore, it was hypothesized that only initial trust would mediate the relationship between the colour displayed in an online retail environment and online purchase intention. More specifically, displaying the colour blue in an online retail environment would elicit more feelings of initial trust compared to displaying the colour red, which in turn would lead to higher purchase intentions. The sub constructs institutional and dispositional trust were added as control variables in the analysis.

In contrast with the findings by Snijder (2018), no mediating effect of initial trust was found in the present study. Additionally, institutional and dispositional trust had, as expected, no effect in the model. However, a main effect of initial trust on online purchase intention was found in the present study, which does replicate the findings by Snijder (2018). An explanation for these results may be due to the fact that there was no control condition in the present study, which was present in the study by Snijder (2018). Therefore, the two colour conditions could not be investigated separately in the mediation analysis of the present study. It can be argued that further investigating the colours separately on their effect on initial trust and online purchase intention may have given different results regarding the mediating effect of initial trust.

Furthermore, a difference was observed between participants perceived trustworthiness towards the product and participants perceived trustworthiness towards the online retail shop. Participants indicated to have a higher perceived trustworthiness towards the product, which was measured in the product attitude scale by Broeder (2018) compared to

the online retail shop, which was measured in the initial trust scale by Chen and Barnes (2007). An explanation as to what has caused this difference should be further investigated.

In addition, consumers from different cultures differ in their online behaviour (Lim, Leung, Sia, & Lee, 2004). For instance, cultures that are more risk averse place more emphasis on trust-inducing factors. The present study investigated the moderating effect of cultural background on the relationship between the colours displayed in an online retail environment and purchase intention. More specifically, it was hypothesized that the effect of cultural background would be more pronounced for high uncertainty avoidance cultures compared to low uncertainty avoidance cultures. According to Hofstede (2018), Russia is perceived as a high uncertainty avoidance culture and The Netherlands is perceived as a low uncertainty avoidance culture.

Purchase intention for the Dutch participants was higher in the blue condition than in the red condition. In contrast, purchase intention for the Russian participants was higher in the red condition than in the blue condition. Although the overall model was significant, no moderating effect of cultural background was found on the relationship between colour and online purchase intention. Despite, cultural background did have a main effect on online purchase intention. So, Dutch consumers were more likely to purchase the product online than the Russian consumers, regardless of the colour they were exposed to.

Next to that, a main effect of uncertainty avoidance on online purchase intention was found, indicating that participants with low levels of uncertainty avoidance were more inclined to purchase products online compared to participants with high levels of uncertainty avoidance. However, the overall model of cultural background was significant unlike the overall model of uncertainty avoidance, indicating that cultural background does have an effect on online purchase intention, however that effect might results from other cultural dimensions rather than uncertainty avoidance.

Interestingly, it seems that the same results emerge in the parallel studies of the present study, as well as by Snijder (2018). No interaction effect of uncertainty avoidance on the relationship between the colours displayed in an online environment and purchase intention was found in these studies. Since different cultural backgrounds were investigated (i.e. China, France, Greece, and Russia), this could indicate that an online retail environment is not a suitable environment to test the effect of uncertainty avoidance.

5.2 Practical Implications

The present study investigated the effect of displaying different colours in an online retail environment. More specifically, light red and dark blue in relation to initial trust and online purchase intention, differentiated by cultural background, were explored. The present study makes an important contribution to the current body of literature about the effect of displayed colours in an online retail environment, initial trust, and online purchase intention across consumers with different cultural backgrounds. While Snijder (2018) examined three sub constructs of trust (initial trust, institutional trust, and dispositional trust) the present study was the first that investigated only the role of initial trust in an online retail environment in relation to colour. Next to that, this was the first study that compared Russian and Dutch consumers in relation to colour in an online retail environment.

No differences were found between displaying the colours light red and dark blue on online purchase intention. In addition, no effect of colour on initial trust was found and initial trust cannot be perceived as mediator between the colours displayed in an online retail environment and purchase intention. However, a main effect of initial trust on online purchase intention was found, indicating that higher feelings of initial trust do lead to higher online purchase intentions. This finding provides a solid foundation to argue that initial trust in online retail environments should be enhanced to increase purchase intentions. However, the visual cue colour seems not appropriate in online settings to increase perceived

trustworthiness in the online retailer. Therefore, retailers should optimize their online retail environment with cues that will increase feelings of initial trust to augment consumers online purchase intention.

Although blue is perceived as a trust-inducing colour (Cyr et al., 2010), this colour does not seem to have an effect on consumers perceived trustworthiness regarding online retail shops. Therefore, online retail shops do not need to alter the colour scheme of their web shop for different cultures. Yet, no differences were found between Russian and Dutch consumers on the relationship between colour and online purchase intention. However, consumers from different cultural backgrounds do not feel and behave the same in an online retail environment. Hence, retailers should know that consumers from low uncertainty avoidance cultures perceive more risk when shopping in an online retail environment compared to an offline retail environment and are therefore less inclined to purchase products online.

5.3 Limitations and Future Research

Whilst the present study provided interesting findings, some limitations were hold, which may serve as valuable input for future research. First, the present study did not control for all elements that could influence colour perception in mind (Aslam, 2006). While selecting the participants the research did not account for gender, educational level, region within a country, religious background, or the possibility of being colour blind. In addition, it should be noted that the colour appeal of the participants towards a certain colour might influence their perceived trustworthiness of that colour. When selecting participants, future research should attempt to maximize control over these elements.

In the present study, an actual online retail environment was used to increase the external validity. The web shop was adapted to ensure a realistic and professionally looking environment in which the focus was on colour. For that reason, elements such as price,

product information, and reviews were not incorporated in the stimuli. Yet, these elements could have an influence on online purchase intention. This might explain why no relationship between the colours displayed in the online retail environment and online purchase intention was found. Consumers may rely on product information or the price of the product while making a consideration to purchase it. Consequently, this information could enhance feelings of trust. Future research could perform a conjoint study in which colour displayed in an online retail environment is investigated in combination with, for example, product information or price. By this, the online retail environment will be more realistic in which the impact of colour in relation to other elements could be assessed.

It should be noted that the present study used a controlled online retail environment in the online survey. Therefore, participants may not have been involved in the online environment as when they were actually in it. The external validity can be increased by future research studies by using a real (controlled) online (retail) environment. In addition, it is unclear to what extent the web shop background is associated with Amazon and if so, to what extent this association might have influenced the results.

Importantly, it was noticed that not all Russians speak English, and when they do speak English, it is mostly not properly. The researcher tried to control this by selecting participants based on their indicated level of English on Tandem. However, their indicated level of English was based on their personal experiences and not on a scientifically tested English test. This limitation should be taken into account when interpreting the results.

Additionally, as the lower part of the bias corrected confidence interval for total indirect effect was close to zero in the mediation analysis, it was a argument to further investigate the effect of initial trust on the colours light red and dark blue. However, there was no control condition in the present study. Therefore, the two conditions could not be further

investigated separately in the mediation analysis. Future research should include a control condition to investigate the effect of colours in online retail environments more specifically.

As indicated by Snijder (2018), light value colours stand out less in an online retail environment that is predominantly white compared to dark value colours. This may have resulted in blending of the light red colour with the online retail environment. This is in line with a study by Geboy (1996), which revealed that colours with added shades of black were more visible compared to tinted colours. However, results of the present study did not find significant differences between the colours light red and dark blue. Though, most participants in the dark blue condition indicated to have seen dark blue in the manipulation check, which may confirm that the dark blue colour stands out. In contrast, a lot of participants in the light red condition indicated to have seen dark blue, which may indicate that the light red colour did not stand out. Future research may investigate as to why in the study by Wildeman (2018) light red stand out more than dark red, opposed to the study by Snijder (2018) in which dark blue stand out more than light blue.

5.4 Conclusion

The present study replicated the findings by Snijder (2018) by investigating the mediating effect of initial trust and the moderating effect of cultural background on the relationship between the colour displayed in an online retail environment and online purchase intention. Contrary to the investigated high involvement product by Snijder (2018), the present study investigated the effect of colour in an online retail environment for a low involvement product. The present study confirms the advocated theory of McKnight and Chervany (2002) that initial trust, institutional trust, and dispositional trust are three sub constructs that can be measured separately within an online retail environment. The results provide sufficient insights for future research to examine what constructs could effectuate the mediating effect of initial trust. In addition, a deeper understanding is needed to understand as

to why colour does not seem to have an influence on online purchase intention. Cultural background does seem to have an effect on purchase intention. Dutch (low uncertainty avoidance culture) consumers are more likely to purchase online than Russian consumers (high uncertainty avoidance culture), regardless of the colour they were exposed to. However, that effect might result from other cultural dimensions rather than uncertainty avoidance. Finally, although participants indicated to associate trust with the colour blue in the colour association question, results of the present study did not corroborate the premise by Broeder and Scherp (2017), stating that blue engenders the most trust.

6. References

Al Kailani, M., & Kumar, R. (2011). Investigating uncertainty avoidance and perceived risk for impacting Internet buying: A study in three national cultures. *International Journal of Business and Management, 6*(5), 76-92.

Aslam, M. (2006). Are you selling the right colour? A cross-cultural review of colour as a marketing cue. *Journal of Marketing Communications*, *12*(1), 15-30.

Bellizzi, J., & Hite, R. (1992). Environmental color, consumer feelings, and purchase likelihood. *Psychology and Marketing, 9*(5), 347-363.

Beugelsdijk, S., Maseland, R., & Hoorn, A. (2015). Are scores on Hofstede's dimensions of national culture stable over time? A cohort analysis. *Global Strategy Journal, 5*(3), 223-240.

Broeder, P., & Scherp, E. (2017). Colour preference of online consumers: a cross-cultural perspective. *Marketing from Information to Decision Journal, 1*(1), 5-15.

Broeder, P., Stokmans, M., & van Wijk, C. (2012). Etniciteit en leesklimaat. De noodzaak van een strakke begripsbepaling geïllustreerd aan een peiling van leesgedrag. *Papers of the Anéla 2012 Applied Linguistics Conference* (213-222). Delft, the Netherlands: Uitgeverij Eburon.

Chakraborty, R., Lee, J., Bagchi-Sen, S., Upadhyaya, S., & Rao, H. R. (2016). Online shopping intention in the context of data breach in online retail stores: An examination of older and younger adults. *Decision Support Systems*, *83*(2), 47-56.

Chen, Y., & Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial Management & Data Systems, 107*(1), 21-36.

Cheng, F., Wu, C., & Yen, D. (2009). The effect of online store atmosphere on consumer's emotional responses: An experimental study of music and colour. *Behaviour & Information Technology*, *28*(4), 323-334.

Clarke, T., & Costall, A. (2008). The emotional connotations of color: A qualitative investigation. *Color Research & Application, 33*(5), 406-410.

Cornelis, I. (2016). *Instabuy: The influence of Instagram likes in webshops on Russian and Dutch consumer behaviour* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Crijns, K. (2017). *Should I trust this host on Airbnb? A cross-cultural study about the effect of profile pictures and self-disclosure on perceived trustworthiness and booking intention* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Cyr, D., Head, M., & Larios, H. (2010). Colour appeal in website design within and across cultures: A multi-method evaluation. *International Journal of Human-Computer Studies, 68*(1-2), 1-21.

Eroglu, S., Machleit, K., & Davis, L. (2003). Empirical testing of a model of online store atmospherics and shopper responses. *Psychology & Marketing*, *20*(2), 139-150.

Ganguly, B., Dash, S., Cyr, D., & Head, M. (2010). The effects of website design on purchase intention in online shopping: The mediating role of trust and the moderating role of culture. *International Journal of Electronic Business*, *8*(4-5), 302-330.

Gorn, G., Chattopadhyay, A., Sengupta, J., & Tripathi, S. (2004). Waiting for the web: how screen color affects time perception. *Journal of Marketing Research, 41*(2), 215-225.

Grazioli, S., & Jarvenpaa, S. L. (2000). Perils of Internet fraud: An empirical investigation of deception and trust with experienced Internet consumers. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, *30*(4), 395-410.

Hall, R., & Hanna, P. (2004). The impact of web page text-background colour combinations on readability, retention, aesthetics and behavioural intention. *Behaviour & Information Technology*, *23*(3), 183-195.

Harridge-March, S. (2006). Can the building of trust overcome consumer perceived risk online?. *Marketing Intelligence & Planning*, *24*(7), 746-761.

Hayes, A. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hofstede, G. (2018). Country Comparison. Retrieved from https://www.hofstede-insights.com/country-comparison/

Hsin Chang, H., & Wen Chen, S. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, *32*(6), 818-841.

Hwang, Y., & Lee, K. (2012). Investigating the moderating role of uncertainty avoidance cultural values on multidimensional online trust. *Information & Management*, *49*(3-4), 171-176.

Jarvenpaa, S., Tractinsky, N., & Saarinen, L. (1999). Consumer trust in an Internet store: A cross-cultural validation. *Journal of Computer-Mediated Communication*, *5*(2), 1-33.

Jung, J., & Kellaris, J. (2004). Cross-national differences in proneness to scarcity effects: The moderating roles of familiarity, uncertainty avoidance, and need for cognitive closure. *Psychology and Marketing, 21*(9), 739-753.

Kauppinen‐Räisänen, H. (2014). Strategic use of colour in brand packaging. *Packaging Technology and Science*, *27*(8), 663-676.

Kauppinen-Räisänen, H., & Luomala, H. (2010). Exploring consumers' product-specific colour meanings. *Qualitative Market Research: An International Journal*, *13*(3), 287-308.

Kim, H. (2005). Consumer profiles of apparel product involvement and values. *Journal of Fashion Marketing and Management: An International Journal*, *9*(2), 207-220.

Kim, D., Ferrin, D., & Rao, H. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, *44*(2), 544-564.

Kim, J., & Moon, J. (1998). Designing towards emotional usability in customer interfaces: Trustworthiness of cyber-banking system interfaces. *Interacting with Computers*, *10*(1), 1-29.

Koo, D., & Ju, S. (2010). The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intention. *Computers in Human Behavior*, *26*(3), 377-388.

Kooli, K., Ben Mansour, K., & Utama, R. (2014). Determinants of online trust and their impact on online purchase intention. *International Journal of Technology Marketing, 9*(3), 305-319.

Kotler, P. (1973). Atmospherics as a marketing tool. *Journal of Retailing*, *49*(4), 48-64.

Koufaris, M., & Hampton-Sosa, W. (2004). The development of initial trust in an online company by new customers. *Information & Management*, *41*(3), 377-397.

Lalomia, M., & Happ, A. (1987). The effective use of color for text on the IBM 5153 color display. *Proceedings of the Human Factors Society Annual Meeting, 31*(10), 1091–1095.

Lee, S., & Rao, V. (2010). Color and store choice in electronic commerce: The explanatory role of trust. *Journal of Electronic Commerce Research, 11*(2), 110-126.

Lichtle, M. (2007). The effect of an advertisement's colour on emotions evoked by an ad and attitude towards the ad. *International Journal of Advertising 26*(1), 37–62.

Lim, K., Leung, K., Sia, C., & Lee, M. (2004). Is eCommerce boundary-less? Effects of individualism-collectivism and uncertainty avoidance on Internet shopping. *Journal of International Business Studies, 35*(6), 545-559.

Madden, T., Hewett, K., & Roth, M. (2000). Managing images in different cultures: A cross-national study of color meanings and preferences. *Journal of international marketing*, *8*(4), 90-107.

McKnight, D., & Chervany, N. (2002). What trust means in e-commerce customer relationships: An interdisciplinary conceptual typology. *International Journal of Electronic Commerce, 6*(2), 35-59.

McKnight, D., Choudhury, V., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *Journal of Strategic Information Systems*, *11*(3-4), 297-323.

Miyazaki, A., & Fernandez, A. (2001). Consumer perceptions of privacy and security risks for online shopping. *Journal of Consumer Affairs*, *35*(1), 27-44.

Morton, J. (2010). Why color matters. Retrieved from http://www.colorcom.com/research/why-color-matters

Muhammad, F. (2018, September 10). Ultimate guide to color psychology [Web log post]. Retrieved from https://instapage.com/blog/ultimate-guide-to-color-psychology

Pelet, J., & Papadopoulou, P. (2011). The effect of e-commerce websites colors on customer trust. *International Journal of E-Business Research*, *7*(3), 1-18.

Pelet, J., & Papadopoulou, P. (2012). The effect of colors of e-commerce websites on consumer mood, memorization and buying intention. *European Journal of Information Systems*, *21*(4), 438-467.

Petty, R., Cacioppo, J., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, *10*(2), 135-146.

Rahman, I. (2018). The interplay of product involvement and sustainable consumption: An empirical analysis of behavioral intentions related to green hotels, organic wines and green cars. *Sustainable Development*, *26*(4), 399-414.

Roschk, H., Loureiro, S., & Breitsohl, J. (2017). Calibrating 30 years of experimental research: A meta-analysis of the atmospheric effects of music, scent, and color. *Journal of Retailing, 93*(2), 228-240.

Singh, S. (2006). Impact of color on marketing. *Management Decision*, *44*(6), 783-789.

Snijder, H. (2018). *The colour of trust online: A cross-cultural study about the effect of colour on perceived trustworthiness and online persuasion* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Spence, C., Puccinelli, N., Grewal, D., & Roggeveen, A. (2014). Store atmospherics: A multisensory perspective. *Psychology & Marketing*, *31*(7), 472-488.

Steblovskaya, A. (2016). *Would you buy it? Comparative analysis of Dutch and Russian consumers on Pinterest* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Triandis, H. (1995). *Individualism and collectivism*. New York, NY: Routledge.

Van Hout, A. (2016). *Are your friends really that important?: What is the influence of the strength of tie on the online consumer behavior and what are the differences between Dutch and Russian consumers?* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Van Aken, Y. (2016). *De invloed van gebruikersgegenereerde inhoud in webwinkels op Nederlands en Russisch consumentengedrag* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Verouden, H. (2017). *What's yours is mine: trusting strangers on Airbnb: A cross-cultural study on the influence of self-disclosure on trust and booking intentions on Airbnb* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Voss, K., Spangenberg, E., & Grohmann, B. (2003). Measuring the hedonic and utilitarian dimensions of consumer attitude. *Journal of Marketing Research*, *40*(3), 310-320.

Wang, Y., & Emurian, H. (2005). An overview of online trust: Concepts, elements, and implications. *Computers in Human Behaviour*, *21*(1), 105-125.

Wildeman, N. (2018). *The color of emotion online: A cross-cultural study about the effects of color values on online booking intention* (master's thesis). Tilburg University, Tilburg, The Netherlands.

Yang, S., Hung, W., Sung, K., & Farn, C. (2006). Investigating initial trust toward e‐tailers from the elaboration likelihood model perspective. *Psychology & Marketing*, *23*(5), 429-445.

Appendix A. Questionnaire

TILBURG UNIVERSITY

At the moment Tilburg University is doing a study about buying in web shops.
We would like to ask you some questions about online shopping and preferences.
This short questionnaire will take about 5 minutes. Your answers will be confidential and anonymised.
Thank you for your cooperation!

Research group 'Culture Online' Tilburg University.

Lisanne van Doremalen

TILBURG UNIVERSITY

What is your gender?

- Male
- Female

What is your age?

What country were you born in?

- The Netherlands
- Russia
- Other, please specify

In what country do you live at the moment?

- The Netherlands
- Russia
- Other, please specify

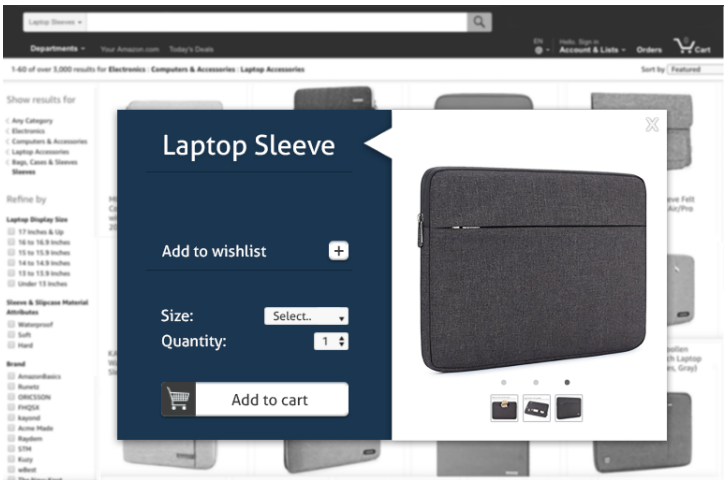
To what ethnic group do you belong?

- Dutch
- Russian
- Other, please specify

What is the highest level of education you have completed?

- Elementary school
- High school
- Middle level education
- Higher education
- University

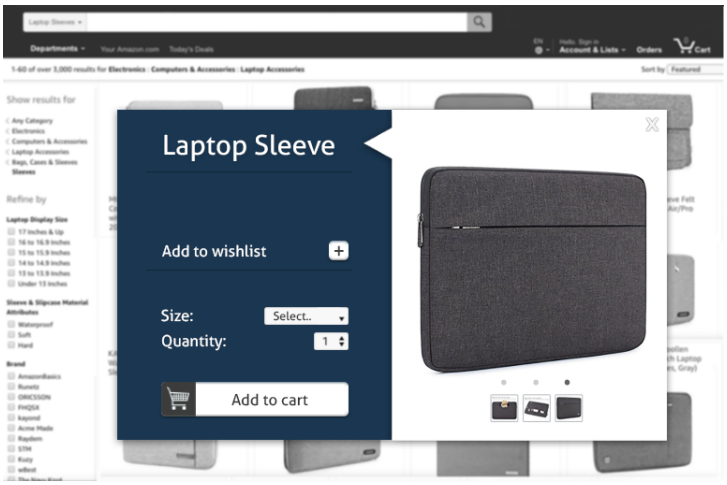
TILBURG UNIVERSITY



Have a close look at the image above.
Imagine you are looking for a simple laptop sleeve.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
I would like to buy this product	○	○	○	○	○

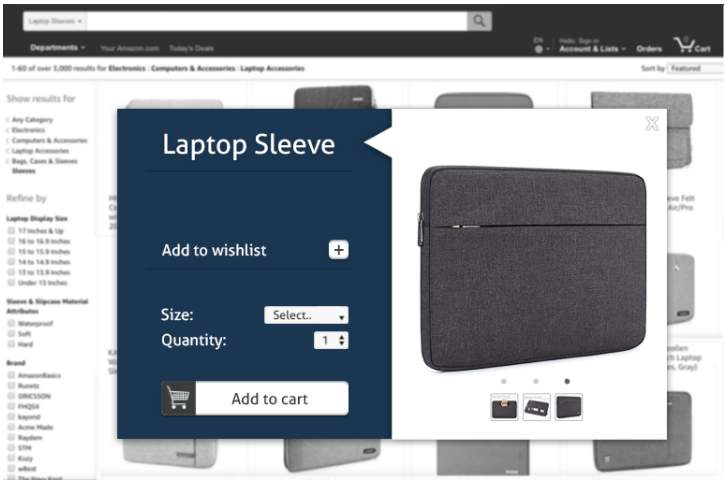
TILBURG UNIVERSITY



Have a close look at the image above.
How do you feel about the product?

Trustworthy	○ ○ ○ ○ ○	Untrustworthy
Enjoyable	○ ○ ○ ○ ○	Irritating
Fun	○ ○ ○ ○ ○	No fun
Informative	○ ○ ○ ○ ○	Not informative
Useful	○ ○ ○ ○ ○	Pointless

TILBURG UNIVERSITY



Have a close look at the image above.

Please indicate your level of agreement on the following statements.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
This website is trustworthy.	○	○	○	○	○
This website is honest.	○	○	○	○	○
This website keeps my best interests.	○	○	○	○	○
This website is secure.	○	○	○	○	○
This website is reliable.	○	○	○	○	○
Prior online purchase experiences from other websites make me feel comfortable in using this website.	○	○	○	○	○
It is easy for me to trust a person.	○	○	○	○	○

TILBURG UNIVERSITY

Please indicate your level of agreement on the following statements.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
I prefer structured situations to unstructured situations.	○	○	○	○	○
I prefer specific instructions to broad guidelines.	○	○	○	○	○
I tend to get anxious easily when I don't know an outcome.	○	○	○	○	○
I feel stressful when I cannot predict consequences.	○	○	○	○	○
I would not take risks when an outcome cannot be predicted.	○	○	○	○	○
I believe that rules shoud not be broken for mere pragmatic reasons	○	○	○	○	○
I don't like ambiguous situations.	○	○	○	○	○

TILBURG UNIVERSITY

Please indicate your level of agreement on the following statements.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
I am familiar with purchasing products online.	○	○	○	○	○
I have good experiences with purchasing products online.	○	○	○	○	○

This colour I associate the most with...

						
Emotion	○	○	○	○	○	○
Trust	○	○	○	○	○	○
Exclusivity	○	○	○	○	○	○

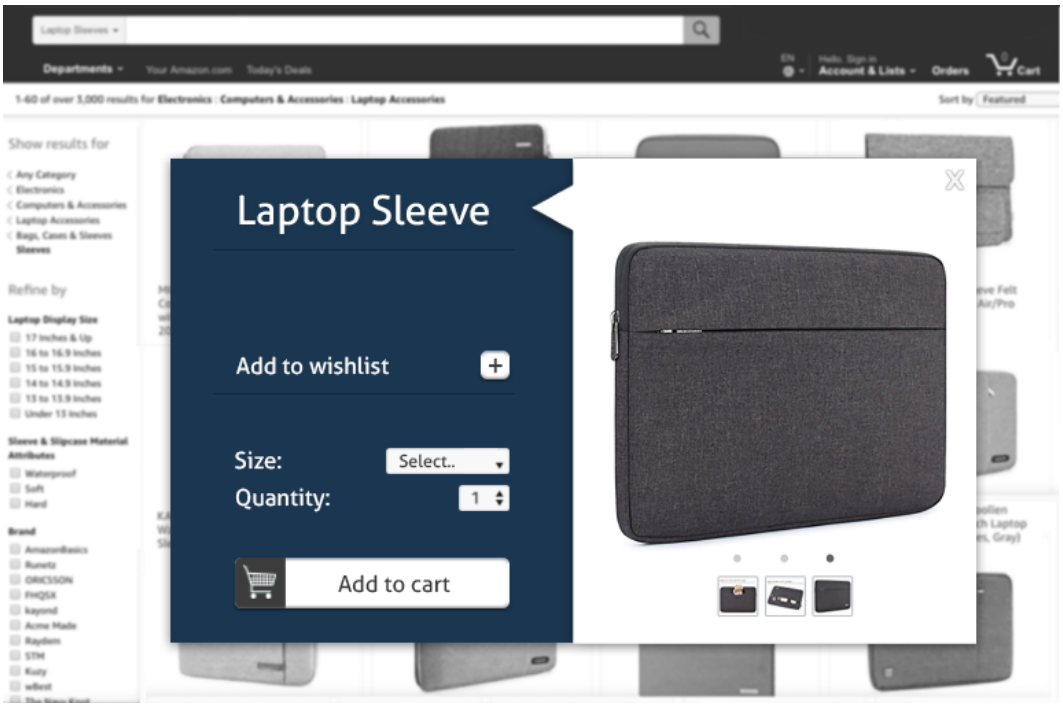
What was the background colour of the images in this questionnaire?

TILBURG UNIVERSITY

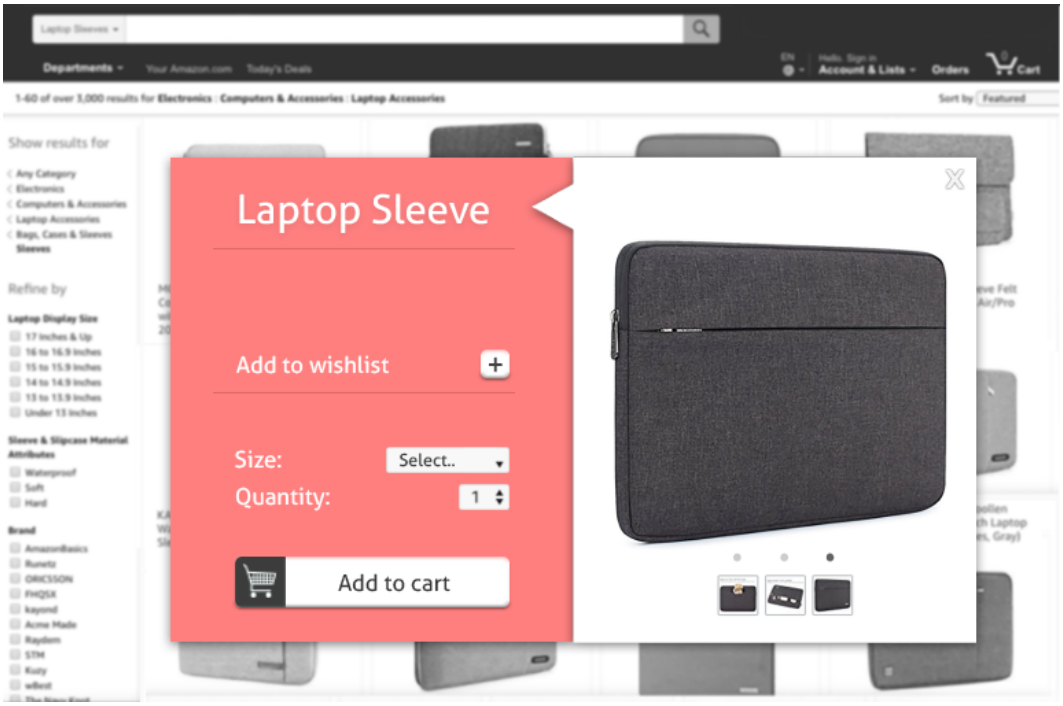
We thank you for your time spent taking this survey.
Your response has been recorded.

Appendix B. Final Stimuli

Blue condition (#1A3650)



Red condition (#FF7F7F)



Appendix C. Experts Reviews

Stimuli review by Asma, Sandra, and Chi

The stimuli and questionnaire reviews are also used by two parallel studies

- The shopping environment is very neutral, which makes it a good stimuli for the questionnaire. It is clear that the background of the stimuli is an online web shop and very familiar to the participants.
- The use of the product is gender-neutral, therefore appealing to both genders. Moreover, the colour of the laptop case is also neutral so that the participants cannot be influenced by the colour.
- As a professional on trust we can indeed confirm that the color blue is the color of trust for example ‘Rijkswaterstaat’, ‘KLM’, ‘Paypal’.
- Moreover, the product code is commonly not as prominent in the picture as it is in your stimuli. It also does not affect my purchase intention. We suggest to remove it and only mention the availability part.
- Qty should be written full-out, in that case people know what it means.
- We suggest to add the size-button, so participants can assume that they can get any size they want. In that case, people will not fall over the fact that the laptop case is too small or too big for them.
- The colour dark blue is a very masculine colour and the colour light red looks very pink. Therefore, girly and not appealing to most men.
- The shadow effect on the ‘add to cart’ button in the last stimuli is very old-fashioned, you should make it consistent to the other stimuli.

- The colour of the cart should not be the same as the color of the background. In the first stimuli it is blue and the color of the cart is also blue, but should be a contrasting color (in this case red).
- Please be careful with spelling errors.

Questionnaire review by Eva – Tilburg University

- Don't you have to mention in the first introduction that this survey is used for your Master's thesis?
- What about privacy? Say something about voluntary participation, what will happen to their answers and whether it is anonymous or not?
- Gender: maybe a third option: 'other' or something
- What is your age in numbers (so it will be easier to transcript)
- Does everybody knows what an ethnic group is? I don't. Maybe explain it?
- I am not sure how I need to decide whether I want to buy this product. I think it's ugly, but maybe it is very cheap. If it was very cheap, the changes are higher I would buy it, but I don't know this. Also, no brand is mentioned, or other characteristics of the product. So how would you want me to decide if I want to buy this product? Therefore, maybe a lot of respondents will answer 'neither agree neither disagree'.
- What is feeling 'emotional' about a product? How do you feel emotional?
- I think it is better that on the left, you have the 'un' conditions, so untrustworthy, unemotional etc., and on the right you have the other conditions, so trustworthy and emotional. I think it is more logically when you rate something more to the left, you rate it higher. You do this right in the last scale
- How can I rate whether a laptop case is informative?
- Same for stupid?

- Is it right to use the word 'to'? → In the sentence: I prefer specific instructions to broad guidelines, it may seem like this is one sentence. Maybe: 'I prefer to receive specific instructions instead of broad guidelines'.
- What does 'for mere' means?
- Does everybody know what the word 'ambiguous' means?

Questionnaire review by Femme – Tilburg University

- Good thing the Tilburg logo is shown, makes it better for people to see what it is for and might result in more trustworthy results.
- With the gender question, give more answering options then male and female, some people might not want to say so or feel different.
- Age in YEARS instead of what is your age.
- Maybe specify ethnic group?
- The question about school, maybe provide Dutch forms as well? (hbo, mbo etc.) to make things clearer. Or what is your target audience?
- Is a laptop sleeve a product people would consider buying? Maybe choose product that is a better fit? Maybe something like a smartphone or an object people tend to use every day?
- I think it is difficult to answer the statements because almost none of these statements refer to the product in my eyes (i.e. the stupid/fun ones).
- One statement says: I trust this website, but what it *this website*? Or did I miss this? It might not be the main thing it is about but I thought it was confusing.
- When you need to specify a color matching emotion, I don't know what to answer because I would say different colors for different emotions.

- Would you put the demographic questions first or last? Maybe if you put them last, they end with easy questions. But putting them first might also be easy. I don't know if you thought about this.

Appendix D. PROCESS Output Mediation Analysis

********** PROCESS Procedure for SPSS Release 2.16.3 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

****

Model = 4
Y = pur_int
X = dum_col
M1 = m_init
M2 = trust_in
M3 = trust_di

Sample size
391

****

Outcome: m_init

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0354	,0013	,3597	,4881	1,0000	389,0000	,4852

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,2330	,0424	76,2307	,0000	3,1496	3,3164
dum_col	,0424	,0607	,6986	,4852	-,0769	,1617

****

Outcome: trust_in

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0391	,0015	,8040	,5941	1,0000	389,0000	,4413

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,4050	,0634	53,7042	,0000	3,2803	3,5297
dum_col	-,0699	,0907	-,7708	,4413	-,2483	,1084

****

Outcome: trust_di

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0859	,0074	,9506	2,8883	1,0000	389,0000	,0900

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,2200	,0689	46,7051	,0000	3,0845	3,3555
dum_col	-,1676	,0986	-1,6995	,0900	-,3616	,0263

****

Outcome: pur_int

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3313	,1098	,8461	11,9014	4,0000	386,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,3989	,2828	4,9457	,0000	,8428	1,9550
m_init	,4052	,0920	4,4053	,0000	,2243	,5860
trust_in	,1185	,0607	1,9537	,0515	-,0008	,2378
trust_di	,0381	,0492	,7747	,4390	-,0586	,1348
dum_col	,0033	,0937	,0356	,9717	-,1810	,1876

********** TOTAL EFFECT MODEL **********

Outcome: pur_int

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0030	,0000	,9431	,0035	1,0000	389,0000	,9527

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,2350	,0687	47,1090	,0000	3,1000	3,3700
dum_col	,0058	,0983	,0594	,9527	-,1873	,1990

********** TOTAL, DIRECT, AND INDIRECT EFFECTS **********

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,0058	,0983	,0594	,9527	-,1873	,1990

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,0033	,0937	,0356	,9717	-,1810	,1876

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	,0025	,0355	-,0653	,0756
m_init	,0172	,0260	-,0292	,0762
trust_in	-,0083	,0131	-,0501	,0087
trust_di	-,0064	,0102	-,0368	,0067
(C1)	,0255	,0239	-,0193	,0763
(C2)	,0236	,0275	-,0277	,0823

Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	,0026	,0366	-,0680	,0773
m_init	,0177	,0268	-,0306	,0768
trust_in	-,0085	,0135	-,0513	,0090
trust_di	-,0066	,0105	-,0382	,0070

Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	,0013	,0183	-,0340	,0387
m_init	,0089	,0134	-,0153	,0384
trust_in	-,0043	,0067	-,0257	,0045
trust_di	-,0033	,0053	-,0191	,0035

Ratio of indirect to total effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	,4291	9,887E+011	-,2041	169,6492
m_init	2,9424	9,658E+011	2,2078	6,829E+013
trust_in	-1,4194	2,913E+010	-510,5821	-,9413
trust_di	-1,0939	6195514036	-4,38E+011	-,8546

Ratio of indirect to direct effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	,7517	14,0352	,0598	593,3604
m_init	5,1540	11,9162	6,2320	193,6875
trust_in	-2,4863	11,2108	-298,8764	-3,6773
trust_di	-1,9161	10,5303	-253,8765	-2,4613

Normal theory tests for specific indirect effects

	Effect	se	Z	p
m_init	,0172	,0255	,6733	,5008
trust_in	-,0083	,0128	-,6474	,5174
trust_di	-,0064	,0103	-,6215	,5343

Specific indirect effect contrast definitions

(C1)	m_init	minus	trust_in
(C2)	m_init	minus	trust_di
(C3)	trust_in	minus	trust_di

********** ANALYSIS NOTES AND WARNINGS **********

Number of bootstrap samples for bias corrected bootstrap confidence intervals: 5000

WARNING: Bootstrap CI endpoints below not trustworthy. Decrease confidence or increase bootstraps
-510,5821 -4,38E+011 -298,8764 -253,8765

Level of confidence for all confidence intervals in output: 95,00

------ END MATRIX -----

Appendix E. PROCESS Output Moderation Analysis

1. Cultural Background

********** PROCESS Procedure for SPSS Release 2.16.3 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

****

Model = 1
Y = pur_int
X = colour
M = eth_gr

Sample size
391

****

Outcome: pur_int

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1691	,0286	,9209	3,7157	3,0000	387,0000	,0117

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,2377	,0488	66,3652	,0000	3,1418	3,3336
eth_gr	-,3108	,0976	-3,1846	,0016	-,5027	-,1189
colour	,0050	,0977	,0513	,9591	-,1870	,1970
int_1	-,2063	,1954	-1,0562	,2915	-,5904	,1778

Product terms key:

int_1	colour	X	eth_gr

R-square increase due to interaction(s):

	R2-chng	F	df1	df2	p
int_1	,0028	1,1156	1,0000	387,0000	,2915

****

Conditional effect of X on Y at values of the moderator(s):

eth_gr	Effect	se	t	p	LLCI	ULCI
-,4987	,1079	,1321	,8169	,4145	-,1518	,3676
,5013	-,0984	,1439	-,6838	,4945	-,3814	,1845

****

Data for visualizing conditional effect of X on Y
Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/colour eth_gr pur_int.
BEGIN DATA.

    -,4885    -,4987    3,3400
     ,5115    -,4987    3,4479
    -,4885     ,5013    3,1300
     ,5115     ,5013    3,0316

END DATA.
GRAPH/SCATTERPLOT=eth_gr WITH pur_int BY colour.

****************** ANALYSIS NOTES AND WARNINGS **********************

Level of confidence for all confidence intervals in output:
   95,00

NOTE: The following variables were mean centered prior to analysis:
 colour   eth_gr

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

NOTE: The Johnson-Neyman method cannot be used with a dichotomous moderator

------ END MATRIX -----
```

2. Uncertainty Avoidance

********** PROCESS Procedure for SPSS Release 2.16.3 **********

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

****

Model = 1
Y = pur_int
X = dum_col
M = m_uncer

Sample size
391

****

Outcome: pur_int

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1376	,0189	,9301	2,1086	3,0000	387,0000	,0986

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,2385	,0491	65,9666	,0000	3,1420	3,3350
m_uncer	,2170	,0893	2,4293	,0156	,0414	,3926
dum_col	-,0010	,0983	-,0098	,9922	-,1943	,1924
int_1	-,0836	,1790	-,4669	,6408	-,4355	,2683

Product terms key:

int_1 dum_col X m_uncer

R-square increase due to interaction(s):

	R2-chng	F	df1	df2	p
int_1	,0006	,2180	1,0000	387,0000	,6408

****

Conditional effect of X on Y at values of the moderator(s):

m_uncer	Effect	se	t	p	LLCI	ULCI
-,5944	,0487	,1543	,3157	,7524	-,2546	,3520
,0000	-,0010	,0983	-,0098	,9922	-,1943	,1924
,5944	-,0506	,1349	-,3755	,7075	-,3158	,2145

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

********** JOHNSON-NEYMAN TECHNIQUE **********

There are no statistical significance transition points within the observed range of the moderator.

****

Data for visualizing conditional effect of X on Y
Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/dum_col m_uncer pur_int.
BEGIN DATA.

-,4885    -,5944    3,0857
,5115     -,5944     3,1345
-,4885     ,0000    3,2390
,5115      ,0000     3,2380
-,4885     ,5944    3,3922
,5115      ,5944     3,3416

END DATA.
GRAPH/SCATTERPLOT=m_uncer WITH pur_int BY dum_col.
```

********** ANALYSIS NOTES AND WARNINGS **********

Level of confidence for all confidence intervals in output:
95,00

NOTE: The following variables were mean centered prior to analysis:
dum_col m_uncer

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

------ END MATRIX -----