ONLINE BEHAVIOURAL ADVERTISING: THE CONGRUENCY EFFECT BETWEEN ADVERTISEMENTS AND INFORMATION DISCLOSURES

Master Thesis
Eline van Zwol
Communication studies – Digital Marketing

First supervisor: Dr. I. van Ooijen
Second supervisor: Dr. T.J.L. van Rompay

23-08-2019

UNIVERSITY OF TWENTE.

Abstract

The rising popularity of Online Behavioural Advertising (OBA) ensures that advertisers are better able to deliver personalized advertisements by monitoring individuals' online behaviour. Previous research signifies that the way advertisements are presented matters in determining the effectiveness of these advertisements. They state that modality congruency (visual vs. textual) in advertising enhances the effectiveness of these advertisements, but research within the field of OBA remains silent about this congruency effect. Due to OBA's corresponding rising privacy concerns, using information disclosures as trust-building cues within those personalized advertisements is now more important than ever. Additionally, it is possible that this congruency effect is also applicable to the use of information disclosures. Therefore, the main contribution of this study is to investigate whether congruency between different forms of information disclosures (textual vs. visual) and different forms of advertisements (textual vs. visual) enhances OBA effectiveness. A 2 [*Form of advertisement*: textual advertisement vs. visual advertisement] x 3 [*Form of disclosure*: no disclosure vs. textual disclosure vs. visual disclosure] between subjects design was conducted and, associated with the use of information disclosures, the role of perceived trust and vulnerability was investigated. 246 respondents participated in an online questionnaire. Findings do not support the prediction that congruency enhances Online Behavioural Advertising effectiveness, but demonstrate that visual advertisements can determine this effectiveness by means of perceptual fluency.

Keywords: Online Behavioural Advertising, Information disclosures, Congruency, Perceptual fluency, Perceived trust, Vulnerability.

Index

1. Introduction

Advertisers are constantly trying to adapt and improve advertising strategies aiming to reach consumers, attract their attention and influence their behaviour (Aguirre, Mahr, Grewal, de Ruyter, & Wetzels, 2015). In today's digital world, advertisers gather and use online data, e.g. consumer browsing behaviour, to target and personalize advertisements. This phenomenon of monitoring individuals' online behaviour and creating personalized advertisements is called Online Behavioural Advertising (OBA) (Boerman, Kruikemeier, & Zuiderveen Borgesius, 2017). By using OBA, advertisers are able to respond to specific needs of (possible) consumers and overall, advertisements seem to be more efficient (Montgomery & Smith, 2009; Boerman et al., 2017). It is therefore expected that OBA will continue to grow (Aguirre et al., 2015). However, since OBA involves gathering personal online data and using this data in creating personalized advertisements exposed to individuals, consumers' privacy concerns rises, which makes them feel vulnerable (Aguirre et al., 2015). As a result, the effectiveness of OBA could be downsized. By building trust, it is possible to reduce these feelings of vulnerability (Bleier & Eisenbeiss, 2015) and therewith the perceived trust in the advertiser is able to prevent OBA effectiveness from declining. Information disclosures are seen as one of the most successful trust-building cues, which is why the use of information disclosures became of great importance to OBA.

Both information disclosures and advertisements can have different forms and characteristics, of which one is either being visual or textual oriented. Previous research demonstrates that congruency in terms of visuality and textuality can play a role in enhancing effectiveness of advertisements in general, since congruency creates perceptual fluency; smooth and easy information processing of individuals is triggered (Winkielman & Cacioppo, 2001; Alter & Oppenheimer, 2009). However, no research has been conducted into this congruency effect within the field of Online Behavioural Advertising. Therefore, the research question of this study is:

'*To what extent does the congruency effect between the form of disclosure (visual vs. textual) and form of advertisement (visual vs. textual) influence the effectiveness of Online Behavioural Advertising?'*

Research in this field is of added value for the following reasons. First of all, privacy and privacy concerns has received an increasing attention from policy and regulatory perspective (Schairer, Rubanovich, & Bloss, 2018). Therefore, the use of information disclosures became and will be more and more important. New insights in enhancing the effectiveness of these information disclosures is therefore of added value. Besides, to advertise as effectively as possible, it is necessary to know which way of advertising is the most effective one. This study contributes to this in both an academic and practical way by providing literature findings and practical implications.

This study contains a literature review aiming to illustrate the key findings regarding the different forms of advertisements and information disclosures in relation to perceived trust, vulnerability and Online Behavioural Advertising effectiveness. Afterwards, based on the literary findings, an experiment is conducted in which the (congruency) effect of these different forms of advertisements (visual vs. textual) and information disclosures (visual vs. textual) on perceived trust, vulnerability and Online Behavioural Advertising effectiveness is investigated.

2. Theoretical Framework

2.1 Personalization and Online Behavioural Advertising

Personalization refers to a marketing strategy in which delivering the right specific content to a specific person at the right time is the central core. Personalization is defined by Li (2016, pp. 26), as:

''*delivering personalized advertisements to individuals based upon their unique preferences.''*

As the word itself already implies, personalization in advertising basically means that advertisements are not made for a massive amount of people, as it used to be formerly, but these advertisements are personalized for every single human being. The use of personalization in online environments increases and continues to grow (Aguirre et al., 2015). The amount of data available in the online environment reveals, e.g. consumer buying habits, website browsing, consumer shopping and consumers' preferences and interests (Li, 2016). Due to this data, advertisers are better able to find out what unique preferences of consumers are. By using this data in creating personalized advertisements, advertisers are able to meet specific needs of consumers and create personal interactive relationships with them (Montgomery & Smith, 2009). This phenomenon of following people online and storing their data is called targeting.

There are different ways to target consumers, but, in the past years, especially one particular area gained advertisers attention: Online Behavioural Advertising (OBA). This way of targeting reflects user's online behaviour (Goldfarb & Tucker, 2011). OBA is defined by Boerman et al. (2017, pp. 364) as:

''the practice of monitoring people's online behaviour and using the collected information to show people individually targeted advertisements.''

OBA has been considered as one of the most important new options advertisers can use in reaching targeted audiences (Keller, 2016; Boerman et al., 2017) and experts expect that future advertising will involve more individual communication and more personalization (Boerman et al., 2017). Therefore, it is believed that OBA will play a major role in future advertising (Boerman et al., 2017).

Online Behavioural Advertising can have positive effects for advertisers as well as for consumers (Aguirre et al., 2015). Aguirre et al. (2015) as well as Bleier and Eisenbeiss (2015) and Chen, Feng, Liu, and Tian (2019) conducted a study about customer reactions to online personalized advertising and found that for consumers, examples of positive effects are that more relevant and appealing ads can be made, cognitive overload can be reduced and consumers experience more convenience. Increased customer- satisfaction and loyalty, more purchases and in the end even be more profitable are considered positive effects for advertisers. On the other hand, OBA can also cause negative effects, especially for consumers. In their study about customer reactions to online personalized advertising, Chen et al. (2019) focussed especially on the negative effects of personalized advertisements and proved, just like Aguirre et al. (2015) and Bleier & Eisenbeiss (2015) that feelings of vulnerability, rising privacy concerns and perceiving a loss of choice and control are considered negative effects for consumers. Negative effects for advertisers can arise from these negative effects of consumers. Examples of these negative effects for advertisers are negative attitudes and/or reactance towards their brand or even lower response rates (Aguirre et al., 2015; Chen et al., 2019). In order to offset these negative effects, transparency in the form of information disclosures can be a solution.

2.2 Transparency and Information Disclosures in Online Behavioural Advertising

When collecting data from consumers, advertisers can choose between two different data collection strategies. The first strategy is called covert data collection. When advertisers' data collection takes place covertly, this means that they are collecting data without the consumer being aware of it, which enhances the negative effects of OBA (Aguirre et al., 2015). In order to reduce the negative effects of OBA, the use of transparency within personalized advertisements is effective, which brings up the other data collection option: overt data collection. When companies are being transparent in their data collection, the collection takes place overtly. This means that transparency, e.g. by means of information disclosures, is used by companies to try to inform consumers about the data collection process and therewith make them aware of the fact that their data is collected (Aguirre et al., 2015). In view of that, transparency provides consumers with information, awareness and control about the collection and

usage of their personal data (Malheiros, Jennett, Patel, Brostoff, & Sasse, 2012; Bleier & Eisenbeiss, 2015). In this, control refers to consumers' perceived feeling of control. Because consumers do have information about, and are made aware of the data collection, they do have the feeling of being in control and being able to choose what is best for them (Bleier & Eisenbeiss, 2015).

Advertisers mostly take into account this transparency and inform consumers by using information disclosures. By clicking on it, those information disclosures reveal why and how consumers are being targeted (Eslami, Krishna Kumaran, Sandvig, & Karahalios, 2018). The mere presence of such information disclosures can serve as trust-building cues (Aguirre et al., 2015). These information disclosures can be added to advertisements in different forms, two of which are central to this study. One of the possibilities is by using an icon as disclosure, of which for this study a fictional icon is used (see Figure 1). Such an icon on which consumers can click to obtain further information is often used in practice. On the other hand, there is the possibility to use text as a disclosure, such as '*This ad is personalized'* (see Figure 2, Boerman et al., 2017). Both possibilities are able to reduce the negative impacts of personalized advertising (Aguirre et al., 2015). The difference between these two options is that an icon is a visual based disclosure, while text, is logically, textual based.

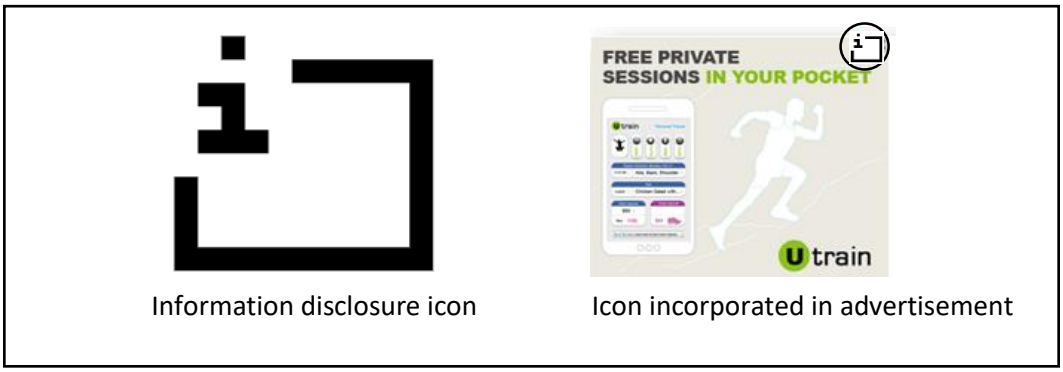


Figure 1. Information disclosure icon

Figure 2. Information disclosure text

2.3 Perceived Trust and Vulnerability

While personalization makes ads more relevant and appealing, Bleier & Eisenbeiss (2015) show that trust is an important element in enhancing the effectiveness of OBA as well. In fact, trust is in the online field mostly so important, that it has been seen as the foundation on which consumers' purchase decisions and click-through intentions are based (Bleier & Eisenbeiss, 2015). Consumers having trust in firms or advertisers, makes them believe that their personal data is in safe hands, which reduces privacy concerns. As a result, consumers perceive personalized ads as more useful and feel less manipulated, which enhances the effectiveness of OBA (Bleier & Eisenbeiss, 2015).

According to Boerman et al. (2017), transparency in the form of information disclosures, either by using an icon or text, can have a positive influence on customers perceived trust. In addition, Aguirre et al. (2015) consider using disclosures as a trust-building strategy, which provides consumers with information on how and why their data is collected. As a result, information disclosures work as trust-building cues, which are able to decrease the negative impacts of personalized advertising (Aguirre et al., 2015). Furthermore, while disclosing targeting ways, advertisers show that personal information is collected in a responsible manner, which enhances perceived trust (Boerman et al., 2017). By being transparent as an advertiser, the advertisers trustworthiness will be positively affected, which lowers privacy concerns and leads to more positive intentions (Stanaland, Lwin, & Miyazaki, 2011). Moreover, Eslami et al. (2018), investigated that advertisements including disclosures received a higher level of perceived trust than ads without disclosures. Based on these findings, the following hypotheses are formulated:

H1: Advertisements that do include a form of disclosure do have a higher perceived trust level than advertisements that do not include a form of disclosure.

H2: The effect of perceived trust on the effectiveness of OBA is positive.

H3: The relationship between form of disclosure and OBA effectiveness is mediated by perceived trust.

Besides perceived trust, vulnerability is an important concept of OBA. When companies collects data covertly, consumers experience feelings of vulnerability once it is realized that personal data was collected without giving permission. As a result, consumers feel discomfort, which increases feelings of vulnerability (Aguirre et al., 2015). Vulnerability in terms of personalized advertising is defined by Dinev & Hart (2004) as: ''*the perceived possible negative consequences of the disclosure of personal information online''.* As stated before, disclosures are able to increase feelings of trust. This higher level of perceived trust results in decreased feelings of vulnerability (Pavlou, Liang, & Xue 2007; Bleier & Eisenbeiss, 2015). Under a high level of perceived trust, feelings of vulnerability are diminished (Aguirre et al., 2015). Besides, trust mitigates vulnerability (Kelly, Kerr & Drennan, 2017). Moreover, trust is able to reduce perceived feelings of vulnerability (Malhotra, Kim & Agarwal, 2004). Finally, reducing feelings of vulnerability results in increased OBA effectiveness (Aguirre et al., 2015). The following hypotheses can be formulated:

H4: The effect of perceived trust on feeling of vulnerability is negative.

H5: The effect of feeling of vulnerability on the effectiveness of OBA is negative.

H6: The relationship between perceived trust and OBA effectiveness is mediated by vulnerability.

2.4 Form of Advertisements and Fluency

As information disclosures can be visual (icon) or textual based, the same is true for advertisements. These advertisements can also have such characteristics. There are advertisements which are visual oriented by using most of the time images as visual appeals, but also textual oriented advertisements, which are shaped mostly by text and words (Schmuck & Matthes, 2017). Pochun, Brennan and Parker (2018) also distinguish two forms of advertisements within their study about the effects of different forms of advertising: advertisements with either textual effects (textual oriented advertisements) or advertisements with visual effects (visual oriented advertisements). Within this research, this is all captured in the one variable called 'form of advertisement'. The reason to study different forms of

advertisements and disclosures is fluency theory; this theory states that different types of disclosures could have different effects for different types of advertisements, which will be explained later on.

Many existing studies on OBA have focused on e.g. transparency, trust or user characteristics and their relationship with the effectiveness of OBA. For example, the study of Bleier & Eisenbeiss (2015) investigates the importance of trust with regard to the effectiveness of OBA and showed that the effectiveness of personalized advertisements hinges on consumers' level of perceived trust in the advertiser. Furthermore, Wirtz, Göttel & Daiser (2017) conducted a research about the effects of individuals usage intensity of Facebook on their approval of Online Behavioural Advertisements and demonstrated that the higher this usage intensity of Facebook is, the higher the approval of OBA is. However, none of these studies addressed the question whether congruency between different forms of advertisements and different forms of disclosures has an influence on the effectiveness of OBA. Based on this, it is important to investigate the impact of this congruency effect.

2.4.1 Rising online behavioural advertising popularity and cognitive fluency.

The main reason to fill the consisting research gap is because it appears to be that individuals are able to process information by means of two different processing styles. The first processing style, system 1, refers to processes that are quick, easily, effortless and fluently (Alter, Oppenheimer, Epley, & Eyre, 2007). In contrast, when metacognitive difficulty or disfluency takes place, System 2 processing is activated, which requires deeper thinking and more cognitive effort (Alter et al., 2007). The systems are also described as cognitive fluency (system 1) and cognitive disfluency (system 2)(Alter et al., 2007; Alter, 2013). More specifically, in terms of this study, fluent processing takes place in congruent or matching situations, while disfluent processing occurs in incongruent or mismatching conditions. To show, Meyers-Levy & Malaviya (1999) have set out a critical framework in which the influence of information-processing systems on advertisements' persuasive impact is discussed. In particular, the framework focussed on the effects a medium, on which the advertisement is placed, has on the degree of information processing: easy or difficult. They prove that placing a highly visual advertisement on a medium with a strong, matching, visual appeal, facilitates recipient's information processing of that

advertisement and that mismatching does not have the same effect. Besides, Winkielman and Cacioppo (2001) conducted a study to test the effect of fluency on consumer evaluations. By starting the study, they let participants watch a slideshow that contains neutral images of objects used every day. For half of the participants, this slideshow was preceded by contour primes that matched the neutral pictures in the slideshow, while for the other half of the participants, the slideshow was preceded by nonmatching primes. This study proved that being primed with a matching contour leads to processing facilitation, while being primed with a mismatching contour does not facilitate this processing. Moreover, in their study about the influence of temporal perceptual fluency on judgments, Alter & Oppenheimer (2009) found out that stimuli are easier to perceive and to process when these stimuli are combined with again, matching primes. Mismatching primes on the other hand, are not that easy to process and it demands more effort. So, in case of this study, it can be said that processing visual cues is easier and fluent in a matching visual environment and processing textual cues is easier and more fluent in a matching textual environment. Therefore, this study aims to find out whether this fluency effect is also applicable to matching or mismatching visual or textual disclosures with visual or textual advertisements. Central to this study is this so called temporal perceptual fluency Alter and Oppenheimer (2009) mention. This temporal perceptual fluency, or disfluency, is a special type of fluency which refers to the ease with which individuals are able to perceive the target stimuli with the senses, in terms of this study with the eyes.

2.4.2 Effect of cognitive fluency on consumer responses.

The way individuals process information, fluent or disfluent, also has an effect on several factors that determine the effectiveness of advertisements, such as advertisements' persuasive impact (Meyers-Levy & Malaviya, 1999), consumer evaluations (Winkielman & Cacioppo, 2001) and judgments (Alter & Oppenheimer, 2009).

Persuasive impact. First of all, according to the study of Meyers-Levy and Malaviya (1999) - who investigate the effects of information-processing systems on the persuasive impact of

advertisements - fluent information processing enhances the persuasive impact of an advertisement, while on the contrary, this persuasive impact in disfluent information processing will be undermined.

Consumer evaluations. Second, the study of Bell & Buchner (2018), in which the relationship between processing fluency and brand preferences is investigated, showed that it is the experience of fluency which immediately leads to increased preferences towards the advertised brands. Furthermore, it has been demonstrated by Winkielman and Cacioppo (2001) that the easy-to-process pictures of their slideshow elicited a higher positive affect and increased liking towards the stimuli than more difficult or disfluent processing. This difficulty even elicited a decrease of the positive affect and a decrease in liking towards the stimuli.

Judgment. Furthermore, to prove the effects of fluency and disfluency, Alter and Oppenheimer found out that fluent processing has a positive influence on truth judgment and liking judgment. To specify, Schwarz (2018) investigated the effects and consequences of information processing regarding truth and shows that easier to process statements are more likely to be perceived as true than disfluent statements. This effect occurs, according to the author, because easier to process statements are experienced as more pleasant and elicit a spontaneous positive affective response.

Trust. Finally, when it comes to perceptual fluency in perspective of perceived trust (see 3.1), the more effective the information disclosure is and the lower the privacy concerns of individuals are, the higher the level of perceived trust will be (Wang, 2011; Taddei & Contena, 2013).

To conclude, it has been proved by several researchers that fluency processing has positive effects on the overall responses of consumers and their perceived trust. All in all, the following hypotheses are formulated:

H7: Congruency between the form of disclosure and form of advertisement results in higher perceived trust than incongruency between the form of disclosure and form of advertisement.

H8: A visual disclosure (icon) is more effective in terms of attitude and click-through intention than a textual disclosure, but only within a matching visual oriented advertisement.

H9: A textual disclosure is more effective in terms of attitude and click-through intention than a visual disclosure (icon), but only within a matching textual oriented advertisement.

2.5 Conceptual Model

Above stated literary findings are conducted in a conceptual model. This conceptual model is a visualized overview of this study, which also contains the relationships between the variables. Afterwards, an overview of the hypotheses will be given.

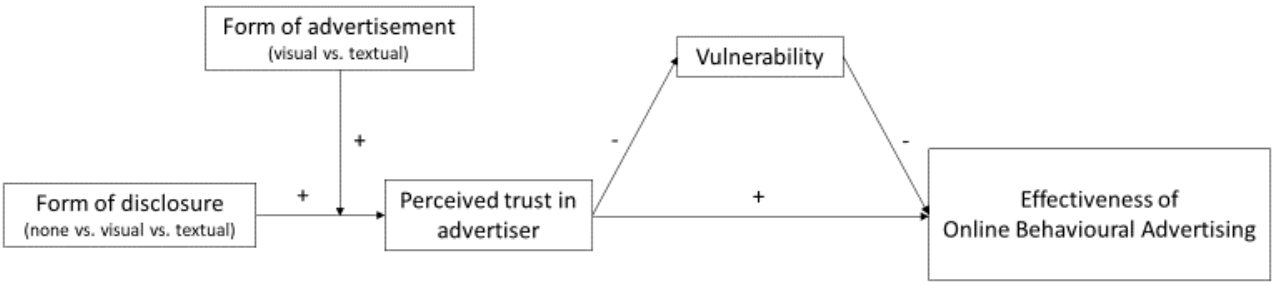


Figure 3. Conceptual model

Table 1
Overview hypotheses

H1	Advertisements that do include a form of disclosure do have a higher perceived trust level than advertisements that do not include a form of disclosure.
H2	The effect of perceived trust on the effectiveness of OBA is positive
H3	The relationship between form of disclosure and OBA effectiveness is mediated by perceived trust.
H4	The effect of perceived trust on feeling of vulnerability is negative.
H5	The effect of feeling of vulnerability on the effectiveness of OBA is negative.
H6	The relationship between perceived trust and OBA effectiveness is mediated by vulnerability.
H7	Congruency between the form of disclosure and form of advertisement results in higher perceived trust than incongruency between the form of disclosure and form of advertisement
H8	A visual disclosure (icon) is more effective than a textual disclosure, but only within a visual oriented advertisement.
H9	A textual disclosure is more effective than a visual disclosure (icon), but only within a textual oriented advertisement.

3. Method

3.1 Pretest

Before starting the main study, a pretest was conducted for which six advertisements were designed (Appendix A). These advertisements were based on three different unisex products (camera, suitcase and toothbrush) for which both a textual and visual version had been developed. Forty participants (17 males, 23 females; mean age: 25,4; age range: 18-56 years) were exposed to all six advertisements and assessed the extent to which the advertisement was perceived as textual vs. visual on a 7 point bipolar scale ('visual-textual'). In addition, their perception regarding the following nine variables was also measured on a 7 point bipolar scale: *reliability* ('reliable-unreliable'), *beauty* ('beautiful-ugly') *credibility* ('believable-unbelievable'), *conviction* ('convincingly-not convincing'), *attraction* ('attractive-unattractive'), *value* ('good-bad'), *pleasure* ('pleasant-unpleasant'), *information level* ('informative-not informative') and the extent to which they perceived it to be *realistic* to encounter the advertisement on the internet ('realistic to encounter on the internet-not realistic to encounter on the internet'). Reliability analysis showed that all measured variables proved to be reliable (Cronbach's α = at least 0,89). Further findings (Paired Sample T-tests) showed that visual advertisements were actually noticed as visual and textual advertisements were also actually noticed as textual. Furthermore, Paired Sample T-tests showed that there were little to no significant differences for the variables (*reliability, beauty, credibility, conviction, attraction, value, pleasure, information level* and the extent of being *realistic*) between the visual and textual conditions of the suitcase and camera and therewith confirmed the effectiveness of the form of advertisement manipulations; the advertisements mostly only differed in terms of visuality or textuality. Based on these results, the most suited advertisements were selected, being the suitcase and camera advertisements (see appendix B for an overview of the results). Small significant found variable differences between the visual and textual conditions have been included again within the main study.

According to Boerman et al., (2017) it appeared to be that textual disclosures, in comparison to visual disclosures, could increase individuals' understanding. This effect was tested in order to rule out this assertion. Therefore, a visual and textual OBA disclosure were designed (Figure 1, Figure 2) and within the same pretest it was tested whether these forms of disclosures both provided the same level of

information to respondents (see Appendix B). A cover story should be able to overcome the problem of unequal information provision. Therefore, two cover stories about advertising were designed (one textual- and one visual oriented) in which information about the visual or textual OBA disclosure was provided. Respondents were randomly assigned to one of the two conditions (textual- or visual oriented cover story) and had to answer 3 statements with regard to their seen OBA disclosure (visual/textual) with correct or incorrect. Findings showed (Independent Sample T-test) that there were no differences found (see appendix B). For that reason, it is decided to use both cover stories and merge them into one.

3.2 Experimental Design

In order to test the formulated hypotheses, an experimental design was conducted. Within the questionnaire, the variables mentioned in the theoretical framework were included in different ways. First of all, a 2 [*Form of advertisement:* textual vs. visual] x 3 [*Form of disclosure*: no disclosure vs. textual disclosure vs. visual disclosure] between subjects design aimed to manipulate the independent variables. The 'no disclosure' condition was taken in as a control variable, that enabled to compare effects of visually or textually disclosures with a situation when there was no disclosure at all. In this, the brand was considered the source of the disclosure. These manipulations resulted in 6 different experimental conditions (see Table 2). To ensure that the effects found were not dependent on one specific product category, a replication factor was added that varied the type of product (a camera or a suitcase). Besides, the variables *perceived trust, vulnerability* and *effectiveness of OBA* as well as *perceptual fluency* were measured by scales already used in former similar investigations. Already existing, but unknown brands were included within the advertisements shown, to make sure that bias, caused by already formed attitudes or preferences was prevented (Muzellec, Kanitz, & Lynn, 2013).

Table 2

The 2x3 between subjects design

Condition	*Form of advertisement*	*Form of disclosure*	*Product type (Replication factor)*
1	Visual	None	Camera
2	Visual	Textual	Camera
3	Visual	Visual	Camera
4	Textual	None	Camera
5	Textual	Textual	Camera
6	Textual	Visual	Camera
1	Visual	None	Suitcase
2	Visual	Textual	Suitcase
3	Visual	Visual	Suitcase
4	Textual	None	Suitcase
5	Textual	Textual	Suitcase
6	Textual	Visual	Suitcase

3.3 Participants and Procedure

300 respondents participated in the experiment of which data of 54 participants was excluded from the experiment based on the following excluding criteria: age and the amount of time spent reading the cover story (see exclusion afterwards). Respondents were recruited personally by means of WhatsApp or by means of social media channels (Facebook, Instagram or LinkedIn) with a hyperlink to the questionnaire. Before starting the questionnaire, respondents were informed that they would be participating in a study about online advertisements and they had to give their consent. The respondents started the questionnaire by answering demographic questions (age, gender and channel through which they reached the questionnaire). Afterwards, respondents were exposed to the cover story about online advertising, followed by a filler task that showed an advertisement of the brand 'Johma'. This was done so that participants could get accustomed to the type of question and to cover up the purpose of the experiment. Respondents had to indicate on a 7 point bipolar scale to which extent they found the Johma advertisement to be *realistic, reliable, credible, convincing, attractive* and *informative.* Next, respondents were randomly assigned to one of the experimental conditions. Within these conditions they read a scenario to make personalization of the advertisement clear and then saw the relevant advertisement. Thereafter, in following order questions about *perceived trust, vulnerability, OBA effectiveness* and *perceptual fluency* were measured. In addition, manipulation checks were included in

the survey. Afterwards, to control for alternative explanations of the hypothesized effects, variables for which the visual vs. textual advertisements differed in the pre-test were again measured (Cronbach's α = .80). Finally, respondents were given the opportunity to fill in their e-mail address to have a chance to win a Bol.com gift card of €25,- and they were thanked for their participation.

3.3.1 Exclusion afterwards.

The 54 respondents who participated within the questionnaire already, but did not meet the inclusion criteria, were excluded afterwards. First of all, respondents outside of the target group, being younger than 18 or older than 65, were excluded from the experiment. To determine the minimum time respondents must have spent reading the cover story, four individuals (aged 18, 22, 45 and 56) read the cover story with an average time of 13 seconds. Considering the fact that everyone reads at a different pace, it has been determined to exclude all respondents that had spent little than eight seconds reading the cover story. In the end, data of 246 respondents was considered useful.

3.4 Measures

Perceived trust. The scale of Walsh, Beatty and Shiu (2009) was used measuring perceived trust in the advertiser within this study. This scale consisted of 5 items and was measured by means of a 7-point Likert scale (''strongly disagree''-''strongly agree''). An example of an item is: '*'I trust the advertiser*'' or '*'The advertiser can be relied upon''*. One extra designed item was included, due to its relevance within the study context: *''This advertiser is credible''* (Cronbach's α = .92).

Vulnerability. Vulnerability in this research was measured by means of the perceived vulnerability scale conducted by Aguirre et al. (2015). This scale consisted of 5 items which respondents had to answer to on a 7-point Likert scale (''strongly disagree''-''strongly agree''). The respondents indicated to which extent the advertisement shown made them feel *''exposed''*, *''unprotected''*, *''susceptible''*, *''unsafe''*, and *''vulnerable''* (Cronbach's α = .84).

Attitude. The effectiveness of OBA was measured by means of two concepts: the attitude about an advertisement and the click-through intention in response to the advertisement. First of all, the

attitude about an advertisement was measured using part of the attitude scale of Kalyanaraman & Sundar (2004) consisting of 8 items, e.g. *''this advertisement is interesting''* (Cronbach's α = .93).

Click-through intention. Second, the single item scale of Aguirre et al., (2015) was used to measure the click-through intention regarding the shown advertisement: *''I would like to click-through the advertisement to get further information''*. Both concepts were rated on a 7-point Likert scale (''strongly disagree''- ''strongly agree'')

Perceptual fluency. Finally, to measure if the 'fluency effect' applied to this study and to check whether this effect was the underlying reason for the results of this study, 3 items were specially designed for this study and based upon several perceptual fluency scales (Lee & Aaker, 2004; Alter et al. 2007; Mosteller, Donthu & Eroglu, 2014). An example of an item is: *''It takes my attention to perceive and understand the advertisement (*reverse coded*)''*. The five items were measured using a 7-point Likert scale (''Strongly disagree''-''Strongly agree'') (Cronbach's α = .80).

An overview of all items can be found in Appendix C.

4. Results

4.1 Covariates

Replication factor. Before starting the analysis, it was tested whether the replication factor 'product type' had an impact on the predicted effects. In all cases the replication factor had no significant effects and is therefore included as a covariate within all the analyses below.

Manipulation checks. With regard to the manipulation checks it was tested to what extent respondents had given a correct or incorrect answer to the statements which form of advertisement they saw (manipulation check called 'Advertisement'), whether they had observed a disclosure (manipulation check called 'Disclosure') and if they did, what form of disclosure they had observed (manipulation check called 'DisclosureForm'). Although analyses showed that the manipulation checks did work (significant effects on means of dependent variables), still a considerable number of respondents answered these statements incorrectly. As a result, the manipulations are included as covariates within the analyses.

Control variables. Furthermore, since all pretest control variables were predicted by the independent variables 'form of advertisement' and/or 'form of disclosure', these pretest control variables were also included as a covariate within the analyses to test whether these control variables also had an influence on the dependent variables. These pretest control variables are: 'Realistic', 'Reliable', 'Credible', 'Convincing', 'Attractive', and 'Informative'. In the following results, covariates are only reported when changing significant effects emerge and when influencing dependent variables. If the covariates do not cause changing significant effects or do not have an influence on the dependent variables, they are disregarded within the results section. For an overview of all ANCOVA-effects, see Appendix D.

4.2 Disclosures and Perceived Trust

To test whether advertisements including a form of disclosure have a higher perceived trust level than advertisements not including a form of disclosure (H1), a one-way ANCOVA was carried out with above mentioned variables as covariates, 'form of disclosure' as independent variable and 'perceived

trust' as dependent variable. The ANCOVA makes clear that the main effects of all covariates were non-significant, with the exception of the variable 'Reliable' (F (1, 47) = 6.357, p <.05, η^2 = .119), showing that logically, individuals perceiving the advertisement as reliable have a different perceived trust level than individuals perceiving the advertisement unreliable. Furthermore, adding the variable 'Reliable' to the analysis did not change any effects. Moreover, 'form of disclosure' appeared to be non-significant (F (2, 47) = 0.960, p = .390, η^2 = .039). Therefore, H1 could not be confirmed. Since the effect of 'form of disclosure' on 'perceived trust' is not significant, concurrently, H3 could also not be confirmed.

4.3 Effects of Perceived Trust, Vulnerability and Online Behavioural Advertising Effectiveness

4.3.1 Effect of perceived trust on online behavioural advertising effectiveness.

Attitude. A univariate regression was carried out to test the effect of perceived trust on OBA effectiveness in terms of attitude with 'perceived trust' as independent variable and 'attitude' as dependent variable. The regression showed that 'perceived trust' is a significant predictor of 'attitude' with a significant positive regression coefficient of perceived trust (β = 0.694; t (244) = 11.20; p < .001), which indicates that perceived trust has a positive effect on attitude (in line with H2).

Click-through intention. A second univariate regression was carried out. This time to test the effect of 'perceived trust' on 'OBA effectiveness' in terms of 'click-through intention' with 'perceived trust' as independent variable and 'click-through intention' as dependent variable. This analysis shows that 'perceived trust' is a significant predictor of 'click-through intention' with a significant positive regression coefficient of perceived trust (β = 0.820; t (244) = 9.71; p <.001), which indicates that, similar to the results of 'attitude', 'perceived trust' has a positive effect on 'click-through intention' (in line with H2). Hence, H2 can be confirmed.

OBA effectiveness. A third univariate regression was carried out to test the effect of 'perceived trust' on the total OBA effectiveness (attitude + click-through intention) and showed that in total 'perceived trust' explains a significant part, 36.2%, of the variance of OBA effectiveness (R^2 = 0.362; F (1, 244) = 138.580; p <.001).

4.3.2 Effect of perceived trust on vulnerability.

Again, a univariate regression was carried out to predict 'vulnerability' from 'perceived trust'. The regression showed that 'perceived trust' is a significant predictor of 'vulnerability', with a significant negative regression coefficient of perceived trust (β = -0.324; t (244) = -4.662; p <.001). This means that the effect perceived trust has on vulnerability is negative (in line with H4). Hence, H4 can be confirmed.

4.3.3 Effect of vulnerability on online behavioural advertising effectiveness.

Attitude. As for the effect of 'vulnerability' on 'OBA effectiveness', a univariate regression was carried out with 'vulnerability' as independent variable and 'attitude' as dependent variable. This analysis showed that, although the effect is not that strong, 'vulnerability' is a significant predictor of 'attitude', with a significant negative regression coefficient of vulnerability (β = -0.146; t (244) = -2.191; p <.05). Thus, the significant effect of 'vulnerability' on 'attitude' is negative (in line with H5).

Click-through intention. Another univariate regression was carried out with again, 'vulnerability' as independent variable, but this time with 'click-through intention' as dependent variable. Similar to the effect of 'vulnerability' on 'attitude', the univariate regression showed that 'vulnerability' is a significant predictor of 'click-through intention', this time with a somewhat stronger effect. Again, the regression coefficient of vulnerability is significant and negative (β = -0.221; t (244) = -2.550; p <.05). By this means, the effect of 'vulnerability' on 'click-through intention' is negative (in line with H5). Hence, H5 can be confirmed.

OBA effectiveness. A third univariate regression was carried out to test the effect of 'vulnerability' on the total 'OBA effectiveness' (attitude + click-through intention) and showed that in total 'vulnerability' explains a significant small part, 2.7%, of the variance of OBA effectiveness (R^2 = 0.027; F (1, 244) = 6.854; p <.01).

4.3.4 Mediation effects of vulnerability.

Although loose significant effects of perceived trust on OBA effectiveness, vulnerability on OBA effectiveness and perceived trust on vulnerability has been found, this does not mean to say that vulnerability mediates the relationship between perceived trust and OBA effectiveness. To test whether this mediation effect occurs, a mediation analysis is carried out.

Attitude. The mediation effect of vulnerability on perceived trust and OBA effectiveness in terms of attitude was tested by means of Hayes' process macro model, with 'perceived trust' as independent variable, 'attitude' as dependent variable and 'vulnerability' as mediator. Step 1 of the mediation process showed that the regression of perceived trust on attitude, ignoring the mediator vulnerability, was significant (β = .694, t (244) = 11.196, p <.001). Likewise, step 2 revealed that the regression of perceived trust on vulnerability was significant either (β = -.324, t (244) = -4.66, p <.001). On the contrary, step 3 demonstrated that the regression of the mediator, vulnerability on attitude, was not significant (β = .032, t (243) = .555, p = .5793) and step 4 of the mediation model showed that, controlling for the mediator vulnerability, perceived trust is still a significant predictor of attitude (β = .704, t (243) = 10.8720, p <.001). To conclude, vulnerability does not mediate the relationship between perceived trust and OBA effectiveness in terms of attitude (opposite to H6).

Click-through intention. The mediation effect of vulnerability on perceived trust and OBA effectiveness in terms of click-through intention was tested by means of Hayes' process macro model as well, with 'perceived trust' as independent variable, 'click-through intention' as dependent variable and 'vulnerability' as mediator. In step 1 of the mediation model, the regression of perceived trust on click-through intention, ignoring the mediator vulnerability, was significant (β = .820, t (244) = 9.71, p <.001). Furthermore, step 2 revealed that the regression of perceived trust on the mediator vulnerability was also significant (β = -3.324, t (244) = -4.66, p <.001). Step 3 on the other hand revealed that the regression of the mediator vulnerability on click-through intention, was non-significant (β = -.015, t (243) = -.195, p = .845), while step 4 demonstrated that, controlling for the mediator vulnerability, perceived trust is still a significant predictor of click-through intention (β = .815, t (243) = 9.23, p <.001). Based on these findings, it was determined that vulnerability does not mediate the relationship between

perceived trust and OBA effectiveness in terms of click-through intention (opposite to H6). Hence, H6 could not be confirmed.

4.4 Congruency Effect and Perceived Trust

To test whether the level of perceived trust is higher when congruency appears (H7), a two-way ANCOVA is carried out with covariates, 'form of advertisement' and 'form of disclosure' as independent variables and 'perceived trust' as dependent variable. The main effect of 'form of advertisement' was non-significant (F (1, 44) = 0.459, p = .501, η^2 = .010), just as the main effect of 'form of disclosure' (F (2, 44) = .549, p = .581, η^2 = .024) and the interaction effect, which was also non-significant (F (2, 44) = 2.138, p = .130, η^2 = .089). Hence, for perceived trust, H7 could not be confirmed.

4.5 Online Behavioural Advertising Effectiveness

Attitude. Starting with OBA effectiveness in terms of attitude, first of all a two-way ANCOVA with the mentioned variables as covariates, 'form of disclosure' and 'form of advertisement' as independent variables and 'attitude' as dependent variable is carried out. Results of this test show that the variable 'Credible' appears to significantly affect attitude (F (1, 44) = 4.260, p <.05, η^2 = .088), showing that respondents who find the advertisement credible have a 'different' attitude than respondents who do not find the advertisement credible. More importantly, whereas 'form of advertisement' at first was significant (F (1, 240) = 9.166, p <.05, η^2 = .037), adding the variable 'Credible' to the analysis changes this into a non-significant main effect of 'form of advertisement' (F (1, 44) = .868, p = .357, η^2 = .019). Besides, there is no significant effect of 'form of disclosure' on attitude (F (2, 44) = 1.886, p = .164, η^2 = .079). The interaction effect between 'form of advertisement' and 'form of disclosure' was not significant either (F (2, 44) = 1.893, p = .163, η^2 = .079).

Click-through intention. Furthermore, a second two-way ANCOVA including the mentioned variables as covariates, 'form of disclosure' and 'form of advertisement' as independent variables and 'click-through intention' as dependent variable is carried out. Results of this test showed that the variable

called 'Attractive' is significant (F (1, 44) = 5.724, p = .021, η^2 = .115), showing that respondents who believe that the advertisement is attractive have a different click-through intention than respondents who believe the advertisement is unattractive. Adding this variable 'Attractive' to the analysis did not change the effects found. The main effects of 'form of advertisement' (F (1, 44) = 0.915, p = .344, η^2 = .020) and 'form of disclosure', were both non-significant (F (2, 44) = 1.764, p = .183, η^2 = .074). The interaction effect between 'form of advertisement' and 'form of disclosure' was non-significant either (F (2, 44) = 1.923, p = .158, η^2 = .080). Hence, for OBA effectiveness, H8 and H9 could not be confirmed.

4.6 Perceptual Fluency

As for perceptual fluency, a two-way ANCOVA is carried out to test whether perceptual fluency (or disfluency) is the underlying reason for the results of this study. Again, covariates were taken in, 'form of advertisement' and 'form of disclosure' were used as independent variables, whereas perceptual fluency' functioned as the dependent variable. The main effect of 'form of advertisement' is significant (F (1, 44) = 7.685, p <.01, η^2 = .149), showing that the visual advertisements (M = 5.01, SD = 1.14) were perceived more fluently than the textual advertisements (M = 4.31, SD = 1.32) On the contrary, the main effect of 'form of disclosure' is again not significant (F (2, 44) = 0.083, p = .921, η^2 = .004), just as the interaction effect between 'form of advertisement' and 'form of disclosure', which is also not significant (F (2, 44) = 0.843, p = .437, η^2 = .037).

4.6.1 Mediation effects of perceptual fluency.

Since significant effects of form of advertisement on perceptual fluency had been found, a mediation analysis is carried out, to test whether perceptual fluency functions as a mediator on the relationship between form of advertisement and OBA effectiveness.

Attitude. The mediation effect of perceptual fluency on form of advertisement and OBA effectiveness in terms of attitude was tested by means of Hayes' process macro model, with 'form of advertisement' as independent variable, 'attitude' as dependent variable and 'perceptual

fluency' as mediator. In step 1 of the mediation model, the regression of the form of advertisement on attitude, ignoring the mediator perceptual fluency, was significant (β = -.497, *t* (244) = -3.06, *p* <.005). Step 2 demonstrated that the regression of form of advertisement on the mediator, perceptual fluency, was also significant (β = -.732, *t* (244) = -4.66, *p* <.001). Step 3 of the model showed that the regression of the mediator, perceptual fluency, on attitude, was significant (β = .019, *t* (243) = 2.35, *p* <.05), while step 4 of the analyses showed that, controlling for the mediator perceptual fluency, the predicting effect of form of advertisement on attitude has downsized (β = -.384, *t* (243) = -2.2900, *p* = <.05). As a result, it was found that perceptual fluency partially mediates the relationship between form of advertisement and OBA effectiveness in terms of attitude. Thus, visual advertisements trigger perceptual fluency, which results in a positive attitude of individuals.

Click-through intention. The mediation effect of perceptual fluency on form of advertisement and OBA effectiveness in terms of click-through intention was tested by means of Hayes' process macro model, with 'form of advertisement' as independent variable, 'click-through intention' as dependent variable and 'perceptual fluency' as mediator. In step 1 of the mediation model, the regression of the form of advertisement on click-through intention, disregarding the mediator perceptual fluency, was marginally significant (β = -4.162, *t* (244) = -1.95, *p* = .0527), while step 2 of the process showed that the regression of form of advertisement on the mediator, perceptual fluency, was significant (β = -.732, *t* (244) = -4.66, *p* <.001). Step 3 of the analyses demonstrated that the regression of the mediator, perceptual fluency on click-through intention, was also significant (β = .188, *t* (243) = 2.17, *p* <.05). Finally, step 4 of the mediation process revealed that, controlling for the mediator, perceptual fluency, form of advertisement was not a significant predictor of click-through intention (β = -.279, *t* (243) = -1.2576, *p* = .2097). In the end, it was found that the mediation of perceptual fluency is marginally significant, demonstrating that perceptual fluency marginally mediates the relationship between form of advertisement and OBA effectiveness in terms of click-through intention. Thus, visual advertisements trigger perceptual fluency, which results in a positive click-through intention of individuals.

5. Discussion

5.1 Perceived Trust and Vulnerability

Starting out with perceived trust, the findings of this study reported does not testify to the opportunity of using information disclosures in enhancing individuals' perceived trust. Contradictory with regard to several former studies who proved that information disclosures work as trust-building cues (Aguirre et al., 2015; Bleier & Eisenbeiss, 2015), this study proves the opposite: No difference has been found between advertisements including or excluding an information disclosure, indicating that information disclosures do not influence the level of perceived trust at all, whatever form of disclosure has been used.

Since information disclosures do not enhance perceived trust, the findings with regard to the congruency effect are in line with this. Regardless of which combination of different forms of advertisements with different forms of disclosures is used (congruent or incongruent), the level of perceived trust is not affected, meaning that the congruency (or incongruency) effect does not influence individuals' perceived trust.

Although the effect of information disclosures or the congruency effect on perceived trust has not been demonstrated, this study again shows evidence of the importance of trust within the field of Online Behavioural Advertising, confirming that the higher the perceived trust, the higher the effectiveness of OBA is. Trust is a key variable and great predictor (more than 36%) of OBA effectiveness and for that reason, it is necessary for advertisers to ensure that individuals trust them or their designed advertisements in order to further improve the effectiveness and be successful in the field of Online Behavioural Advertising. This study therewith contributes to the knowledge that the importance of trust should not be underestimated.

Then there is the question of how to enhance that trust. Although this study cannot provide an answer to that question, other studies that are in line with this research give more insight about it (e.g. Aguirre et al., 2015; Bleier & Eisenbeiss, 2015; Boerman, et al., 2017; Eslami et al., 2018).

As a final point, in line with the expectation, perceived trust influences vulnerability. As a matter of fact, the higher the level of perceived trust is, the lower individuals' feeling of vulnerability is.

Likewise, vulnerability in turn has a small influence on the effectiveness of Online Behavioural Advertising. Specifically, the lower the feeling of vulnerability, the higher the effectiveness is. Thus, what applies to advertisers is the fact that reducing vulnerability is able to contribute to enhancing OBA effectiveness, but due to its small power, not able to enhance OBA effectiveness by itself. More importantly, the impact of perceived trust on OBA effectiveness is that major, that as a result, vulnerability is not able to influence this impact, confirming that perceived trust has the most power and therewith is the most important variable to take into account when designing Online Behavioural Advertisements.

5.2 Online Behavioural Advertising Effectiveness

With regards to Online Behavioural Advertising effectiveness, the findings reported demonstrate first of all, against expectation, that using different forms of advertisements does not directly influence OBA effectiveness in terms of both attitude and click-through intention. Second, using different forms of disclosures does not influence OBA effectiveness in terms of both attitude and click-through intention as well. More importantly, 'congruency' or 'incongruency', by means of 'matching' or 'mismatching' forms of advertisements with forms of disclosures, does not influence the effectiveness of OBA (both attitude and click-through intention) either. Thus, when it comes to the predefined hypotheses, it cannot be stated that a certain form of disclosure is more effective within a certain form of advertisement. Subsequent, in practice of advertising design, for advertisers, it makes no difference if various forms of advertisements (visual vs. textual), various forms of disclosures (visual vs. textual) or a specific combination of these two is used in order to enhance Online Behavioural Advertising effectiveness directly. On the other hand, this study demonstrated that this effectiveness can be enhanced indirectly by means of perceptual fluency, which will be discussed hereafter.

5.3 Perceptual Fluency

However, of equal importance is the finding that neither congruency, nor incongruency does influence perceptual fluency of individuals. In other words, congruency (or incongruency) between the form of

advertisement and the form of disclosure does not play any part in triggering perceptual fluency when individuals look at advertisements. Besides, different forms of disclosures also appear to have no effect on the ease of information processing of individuals. By way of contrast, different forms of advertisements do make a difference when it comes to triggering perceptual fluency. This study proves that visual advertisements are easier to perceive than textual advertisements, regardless of which form of disclosure is used. So, visual advertisements are able to trigger perceptual fluency.

On top of that finding, it is important to note that perceptual fluency functions as a mediator on the relationship between the form of advertisement used and the attitude and click-through intention of individuals (OBA effectiveness). This study proves that although there is no direct effect of form of advertisement on attitude and click-through intention, an indirect link has been found: by creating perceptual fluency. That is, by using visual advertisements, perceptual fluency is triggered, which in turn is able to enhance OBA effectiveness in terms of both attitude and click-through intention. So, by triggering perceptual fluency by means of visual advertisements, indirectly, visual advertisements are able to enhance Online Behavioural Advertising effectiveness. Although directly it does not seem to matter which form of advertisement is used, indirectly it does matter. Therefore, advertisers need to consider which form of advertisement to use in order to trigger perceptual fluency and being able to enhance OBA effectiveness indirectly in terms of attitude and click-through intention.

5.4 Limitations and Shortcomings

Finally, it is important to consider the limitations and shortcomings of this study. First of all, this study used advertisements that differed in terms of visuality or textuality, but these advertisements can potentially differ on more dimensions than visuality or textuality alone. A number of these advertisement characteristics are controlled for, e.g. credibility or reliability and it can be confirmed that these characteristics formed confounders that did influence the results presented (in both pretest and main study) and even provided alternative explanations for the hypothesized effects, especially for the form of advertisement. However, it cannot be ruled out that other advertisement characteristics influenced the

results presented as well. A replication study incorporating other advertisement characteristics could rule out other alternative explanations.

Furthermore, it is important to note that in reality, the two different forms of advertisements used (visual and textual advertisements), do not often appear separately; predominantly a combination of the two is used by advertisers, wherefore it can be questioned to what extent it reflects reality to use these forms of advertisements separately within this study. A follow-up study using a combination of the two forms could shed more light on the influence of these forms of advertisements on OBA effectiveness.

Besides, by reading a cover story participants learned about the meaning and intention of the information disclosures used (visual and textual), prior to exposure of the advertisement. Additionally, participants that were unaware of this intention of the information disclosures were excluded from the study (based on time spent reading the cover story). As a matter of fact, it can be criticized to what extent it is realistic to do so, since in the daily life, there will be individuals who are unaware of the meaning and function of these information disclosures as well.

The following limitation relates to the textual based scenario used to make personalization clear. Since such a scenario is used, respondents did know prior to exposure of the advertisement that this advertisement was personalized. In the usual way, respondents are suddenly exposed to such an advertisement or maybe are even unaware of the personalized factor. Besides, all respondents were exposed to more or less the same product content; a camera or a suitcase, while under normal conditions, all respondents are exposed to products or services of their own interest. Consequently, it is likely that there were differences between the actual interest of individuals into the used products and that their attitudes with regard to these products differed. Therefore, it can be questioned again to which extent it is realistic to measure personalization this way and it cannot be ruled out that these factors influenced the results presented. To find a way to naturally measure personalization would be an addition to academic research (see Adomavicius & Tuzhilin, 2005 for more information on what is needed to deliver realistic personalized advertisements).

Likewise, the effects of trust with regard to attitude and click-through intention were not significant. This could relate to the fact that the scores for the advertisements with the two product types were most of the time lower than 4 (on a 7-point Likert scale) and thus perhaps indicative of a ceiling effect. With regard to the product type (camera or suitcase) shown within the advertisements, already existing, but unknown brands were connected to these products; 'Pentax' (camera) and 'BagBase' (suitcase). Since these brand names already exist, it could be that some participants were familiar with the brand used and familiarity is therefore perhaps indicative of a ceiling effect with regard to trust; participants already formed attitudes about the brands, which makes the manipulation and results meaningless. Therefore, it cannot be ruled out that differences in terms of brand familiarity influenced the results presented.

Moreover, processing fluency was measured after respondents noticed the advertisement. Since processing fluency is a cognitive effect that often might happen unconsciously, it could be that respondents themselves were not totally aware of how they processed the advertisement to which they were exposed to. Therefore, follow-up research is recommended using other techniques measuring cognitive fluency, such as eye-tracking (see Wojdynski & Bang, 2016).

Furthermore, by recruiting respondents online, no control can be exercised on the demographic data of these respondents, causing unequal sample sizes in terms of age and gender, which resulted in underrepresentation of males and 30-65 years old. Besides, by far most respondents were recruited by means of Facebook (N = 153) and Instagram (N = 58) of which Facebook is textual oriented and Instagram is visual oriented (Alhabash & Ma, 2017; Huang & Su, 2018). It cannot be ruled out that these Social Networking Sites characteristics influenced the results presented.

Of further interest with respect to personalization and in line with what is stated above, is research giving insight into the influence of Social Networking Sites characteristics on the congruency effect. More specifically, research investigating the congruency effect in terms of visuality/textuality between Social Networking Sites and different forms of advertisements. Following a solid line of reasoning, congruency between the medium on which the advertisement is placed and the advertisement itself influences individuals' information processing (Winkielman & Cacioppo, 2001). This could also

account in terms of personalization and could shed an additional light on enhancing the effectiveness of Online Behavioural Advertising.

Ultimately, giving the growing importance of personalization and privacy concerns, a replication study taking into account these limitations is recommended. Finding ways to enhance OBA effectiveness can bring positive effects for advertisers as well as for consumers (Aguirre et al., 2015). Besides, although this study does not support it, research shows that the congruency effect and corresponding perceptual fluency is well able to enhance customer reactions, while incongruency and corresponding disfluency is able to enhance individuals attention (Alter et al., 2007). This study mainly focussed on the effects of perceptual fluency on OBA effectiveness and did not take into account the variable attention itself, because although disfluency is able to enhance the attention of individuals, at the same time, increasing attention can have a negative effect on evaluations of consumers (Alter et al., 2007). However, since this study demonstrates that a large proportion of respondents did not notice the information disclosure within the advertisement, increasing attention could play a necessary role. To test whether this effect of attention is applicable in the field of personalization and to find out how this attention influences customer evaluations and OBA effectiveness, a replication study focussing on disfluency is recommended.

Finally, deepening can be of value for this research, which is why triangulation is recommended, meaning that more than one method is used to collect data on the same topic; besides the quantitative form of this study, a qualitative form can be added to bring out deeper underlying issues (Gable, 2017), e.g. the underlying opinions about different forms of advertisements or disclosures.

6. Conclusion

In concluding, the main question prepared prior to this study can be answered:

'*To what extent does the congruency effect between the form of disclosure (visual vs. textual) and form of advertisement (visual vs. textual) influence the effectiveness of Online Behavioural Advertising?'*

It can confidently be said that congruency between the form of disclosure and the form of advertisement in terms of visuality or textuality does not influence the effectiveness of Online Behavioural Advertising. Alternatively, visual advertisements are indirectly able to influence Online Behavioural Advertising effectiveness, since these advertisements trigger perceptual fluency. As has been noted, this study underlines the importance of perceived trust in the field of Online Behavioural Advertising. Eventually, this study has contributed to the provision of information in the field of Online Behavioural Advertising and has provided new insights into this field, both theoretically and practically. Follow-up studies could shed additional light to the role the congruency effect can play in Online Behavioural Advertising.

References

Adomavicius, G., & Tuzhilin, A. (2005). Personalization technologies: A process oriented perspective. *Communications of the ACM, 48*(10), 83–90. https://doi.org/10.1145/1089107.1089109

Aguirre, E., Mahr, D., Grewal, D., De Ruyter, K., & Wetzels, M. (2015). Unraveling the Personalization Paradox: The effect of information collection and trust-building strategies on online advertisement effectiveness. *Journal of Retailing, 91*(1), 34–49. https://doi.org/10.1016/j.jretai.2014.09.005

Alhabash, S., & Ma, M. (2017). A tale of four platforms: Motivations and uses of Facebook, Twitter, Instagram, and Snapchat among college students? *Social Media & Society*, *3*(1), 1–13. https://doi.org/10.1177/2056305117691544

Alter, A. L. (2013). The benefits of cognitive disfluency. *Current Directions in Psychological Science, 22*(6), 437–442. https://doi.org/10.1177/0963721413498894

Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review, 13*(3), 219–235. https://doi.org/10.1177/1088868309341564

Alter, A. L., Oppenheimer, D. M., Epley, N., & Eyre, R. N. (2007). Overcoming intuition: Metacognitive difficulty activates analytic reasoning.. *Journal of Experimental Psychology: General, 136*(4), 569–576. https://doi.org/10.1037/0096-3445.136.4.569

Bell, R., & Buchner, A. (2018). Positive effects of disruptive advertising on consumer preferences. *Journal of Interactive Marketing, 41*, 1–13. https://doi.org/10.1016/j.intmar.2017.09.002

Bleier, A., & Eisenbeiss, M. (2015). The importance of trust for personalized online advertising. *Journal of Retailing, 91*(3), 390–409. https://doi.org/10.1016/j.jretai.2015.04.001

Boerman, S. C., Kruikemeier, S., & Zuiderveen Borgesius, F. J. (2017). Online Behavioral Advertising: A literature review and research agenda. *Journal of Advertising, 46*(3), 363–376. https://doi.org/10.1080/00913367.2017.1339368

Chen, Q., Feng, Y., Liu, L., & Tian, X. (2019). Understanding consumers' reactance of online personalized advertising: A new scheme of rational choice from a perspective of negative effects. *International Journal of Information Management, 44*, 53–64. https://doi.org/10.1016/j.ijinfomgt.2018.09.001

Dinev, T., & Hart, P. (2004). Internet privacy concerns and their antecedents - measurement validity and a regression model. *Behaviour & Information Technology, 23*(6), 413–422. https://doi.org/10.1080/01449290410001715723

Eslami, M., Krishna Kumaran, S. R., Sandvig, C., & Karahalios, K. (2018). Communicating algorithmic process in online behavioral advertising. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18*, https://doi.org/10.1145/3173574.3174006

Gable, G. G. (2017). Integrating case study and survey research methods: an example in information systems. *European Journal of Information Systems, 3*(2), 112-126. https://doi.org/10.1057/ejis.1994.12

Goldfarb, A., & Tucker, C. (2011). Online display advertising: targeting and obtrusiveness. *Marketing Science*, *30*(3), 389–404. https://doi.org/10.2307/23012474

Huang, Y., & Su, S. (2018). Motives for Instagram use and topics of interest among young adults. *Future Internet*, *10*(8), 77–89. https://doi.org/10.3390/fi10080077

Kalyanaraman, S., & Sundar, S. S. (2004). The psychological appeal of personalized content in web portals: Does customization affect attitudes and behavior? *Journal of Communication*, *56*(1), 110–132. https://doi.org/10.1111/j.1460-2466.2006.00006.x

Keller, K. L. (2016). Unlocking the power of integrated marketing communications: How integrated is your IMC program? *Journal of Advertising*, *45*(3), 286–301. https://doi.org/10.1080/00913367.2016.1204967

Kelly, L., Kerr, G., & Drennan, J. (2017). Privacy concerns on social networking sites: a longitudinal study. *Journal of Marketing Management*, *33*(17-18), 1465–1489. https://doi.org/10.1080/0267257x.2017.1400994

Lee, A. Y., & Aaker, J. L. (2004). Bringing the frame into focus: The influence of regulatory fit on processing fluency and persuasion.. *Journal of Personality and Social Psychology*, *86*(2), 205 218. https://doi.org/10.1037/0022-3514.86.2.205

Li, C. (2016). When does web-based personalization really work? The distinction between actual personalization and perceived personalization. *Computer Human Behaviour*, *54*, 25–33. https://doi.org/10.1016/j.chb.2015.07.049.

Malheiros, M., Jennett, C., Patel, S., Brostoff, S., & Sasse, M. A. (2012). Too close for comfort: A study on the effectiveness and acceptability of rich-media personalized advertising. *Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems - CHI '12*, . https://doi.org/10.1145/2207676.2207758

Malhotra, N. K., Kim, S. S., & Agarwal, J. (2004). Internet users' information privacy concerns (IUIPC): The Construct, the Scale, and a Causal Model. *Information Systems Research*, *15*(4), 336–355. https://doi.org/10.1287/isre.1040.0032

Meyers-Levy, J., & Malaviya, P. (1999). Consumers' processing of persuasive advertisements: An integrative framework of persuasion theories. *Journal of Marketing*, *63*, 45. https://doi.org/10.2307/1252100

Montgomery, A. L., & Smith, M. D. (2009). Prospects for personalization on the internet. *Journal of Interactive Marketing*, *23*(2), 130–137. https://doi.org/10.1016/j.intmar.2009.02.001

Mosteller, J., Donthu, N., & Eroglu, S. (2014). The fluent online shopping experience. *Journal of Business Research*, *67*(11), 2486–2493. https://doi.org/http://dx.doi.org/10.1016/j.jbusres.2014.03.009

Muzellec, L., Kanitz, C., & Lynn, T. (2013). Fancy a coffee with Friends in 'Central Perk'? *International Journal of Advertising, 32*(3), 399-417. https://doi.org/10.2501/ija-32-3-399-417

Pavlou, P., Liang, H., & Xue, Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective. *MIS Quarterly, 31*(1), 105–136. https://doi.org/10.2307/25148783

Pochun, T., Brennan, L., & Parker, L. (2018). Advertising effects? An elemental experiment. *Australasian Marketing Journal (AMJ), 26*(4), 338–349. https://doi.org/10.1016/j.ausmj.2018.09.002

Schairer, C. E., Rubanovich, C. K., & Bloss, C. S. (2018). How could commercial terms of use and privacy policies undermine informed consent in the age of mobile health? *AMA Journal of Ethics, 20*(9), 864–872. https://doi.org/10.1001/amajethics.2018.864

Schmuck, D., & Matthes, J. (2017). Effects of economic and symbolic threat appeals in right-wing populist advertising on anti-immigrant attitudes: *The impact of textual and visual appeals. Political Communication, 34*(4), 607–626. https://doi.org/10.1080/10584609.2017.1316807

Schwarz, N. (2018). Of fluency, beauty, and truth. Oxford Scholarship Online, . https://doi.org/10.1093/oso/9780198789710.003.0002

Stanaland, A. J. S., Lwin, M. O., & Miyazaki, A. D. (2011). Online privacy trustmarks. *Journal of Advertising Research, 51*(3), 511–523. https://doi.org/10.2501/jar-51-3-511-523

Taddei, S., & Contena, B. (2013). Privacy, trust and control: Which relationships with online self disclosure? *Computers in Human Behavior, 29*(3), 821–826. https://doi.org/10.1016/j.chb.2012.11.022

Walsh, G., Beatty, S. E., & Shiu, E. M. K. (2009). The customer-based corporate reputation scale: Replication and short form. *Journal of Business Research, 62*(10), 924-930. doi:10.1016/j.jbusres.2007.11.01

Wang, A. (2011). The effects of firms' advertising disclosures as a reflection of CSR practices on consumer responses. *Social Responsibility Journal, 7*(4), 592–603. https://doi.org/10.1108/17471111111175155

Winkielman, P., & Cacioppo, J. T. (2001). Mind at ease puts a smile on the face: Psychophysiological evidence that processing facilitation elicits positive affect. *Journal of Personality and Social Psychology, 81(*6), 989–1000. https://doi.org/10.1037/0022-3514.81.6.989

Wirtz, B. W., Göttel, V., & Daiser, P. (2017). Social networks: Usage intensity and effects on personalized advertising. *Journal of Electronic Commerce Research, 18*(2), 103–123. Retrieved from https://pdfs.semanticscholar.org/6ec9/37282eafc6afc39a1248bf53eba523c7d4c8.pdf

Wojdynski, B. W., & Bang, H. (2016). Distraction effects of contextual advertising on online news processing: an eye-tracking study. *Behaviour & Information Technology, 35*(8), 654–664. https://doi.org/10.1080/0144929X.2016.1177115

Appendices

Appendix A: Overview of advertisements designed for pretest

1. Visual advertisement camera

2. Textual advertisement camera

3. Visual advertisement suitcase

4. Textual advertisement suitcase

5. Visual advertisement toothbrush

6. Textual advertisement toothbrush

Appendix B: Overview pretest results

Table 3.
Cronbach's Alpha and perceived form of advertisement (visual vs. textual)

Experimental condition	**Cronbach's α**	**Means perceived form of advertisement (1 = visual, 7 = textual)**
Visual advertisement camera	.93	2.22
Textual advertisement camera	.89	6.06
Visual advertisement suitcase	.95	2.39
Textual advertisement suitcase	.95	6.17
Visual advertisement toothbrush	.97	1.72
Textual advertisement toothbrush	.95	6.11

Table 4.
Paired Sample T-tests

Camera
(1 = Realistic; 7 = Not realistic);(1= Reliable; 7 = Unreliable) etc.

Variables	Sig.	2-tailed Sig.	Advertisement Visual	Advertisement Textual	Difference
Realistic	0.883	0.098	2.94	4.00	1.06
Reliability	0.007	0.048	3.28	3.94	0.66
Beauty	0.114	0.402	3.89	4.22	0.33
Credibility	0.143	0.360	3.78	4.17	0.39
Conviction	0.047	0.217	4.50	4.00	0.50
Attraction	0.104	0.158	4.17	4.78	0.61
Value	0.004	0.863	4.22	4.17	0.05
Pleasure	0.491	0.250	3.56	4.11	0.55
Information level	0.384	0.000	5.50	3.39	2.11

Suitcase
(1 = Realistic; 7 = Not realistic);(1= Reliable; 7 = Unreliable) etc.

Variables	Sig.	2-tailed Sig.	Advertisement Visual	Advertisement Textual	Difference
Realistic	0.264	0.027	2.22	3.17	0.95
Reliability	0.063	0.384	2.78	3.06	0.28
Beauty	0.019	0.069	2.72	3.33	0.61
Credibility	0.001	0.104	2.78	3.22	0.44
Conviction	0.024	0.636	3.11	3.28	0.17
Attraction	0.557	0.243	2.94	3.50	0.56
Value	0.063	0.660	2.94	3.11	0.17
Pleasure	0.308	0.197	2.72	3.22	0.50
Information level	0.130	0.004	4.06	2.78	1.28

Toothbrush
(1 = Realistic; 7 = Not realistic);(1= Reliable; 7 = Unreliable) etc.

Variables	Sig.	2-tailed Sig.	Advertisement Visual	Advertisement Textual	Difference
Realistic	0.121	0.228	2.33	2.89	0.56
Reliability	0.026	0.848	2.61	2.67	0.06
Beauty	0.049	0.151	2.50	3.17	0.67
Credibility	0.018	0.707	2.56	2.67	0.11
Conviction	0.005	0.881	3.06	3.00	0.06
Attraction	0.012	0.207	2.56	3.06	0.50
Value	0.019	0.653	2.89	2.72	0.17
Pleasure	0.066	0.451	2.61	2.89	0.28
Information level	0.035	0.000	4.17	2.44	1.73

Table 5.
Information provision visual and textual disclosures
(1 = 1 statement answered correctly, 2 = 2 statements answered correctly, 3 = 3 statements answered correctly)

Form of disclosure	**Mean**	**Sig.**
Visual	2.36	.248
Textual	2.50	

Appendix C: Overview of all measured items

Table 6.
Overview of all items to measure variables

	Item	Source
Perceived trust	I trust the advertiser I have great confidence in the advertiser The advertiser has high integrity I can depend on the advertiser to do the right thing The advertiser can be relied upon This advertiser is credible	Walsh et al. (2009)
Vulnerability	The advertisement makes me feel… … exposed … unprotected … susceptible … unsafe … vulnerable	Aguirre et al. (2015)
Attitude about advertisement	This advertisement is interesting This advertisement is likeable This advertisement is pleasant This advertisement is attractive This advertisement is favourable This advertisement is useful This advertisement is appealing	Kalyanaraman & Sundar (2004)
Click-through intention	I would like to click-through the advertisement to get further information	Aguirre et al. (2015)
Perceptual Fluency	It takes me attention to perceive and understand the advertisement I can understand all parts of the advertisement at a glance I can understand the advertisement without any difficulty	Based on: Lee and Aaker (2004) Alter et al. (2007) Mosteller, Donthu and Eroglu (2014)

Appendix D: Overview of all ANCOVA effects

Table 7.
Effects OBA effectiveness – attitude (2-way ANCOVA)

Variables		df	F	Sig.	Partial Eta Squared
Product type	(replication factor)	1	.612	.438	.014
Realistic		1	.003	.953	.000
Reliable		1	.231	.633	.005
Credible		1	4.260	.045	.088
Convincing		1	.188	.666	.004
Attractive		1	1.057	.309	.023
Informative		1	.502	.483	.011
Advertisement	(manipulationcheck)	1	.454	.504	.010
Disclosure	(manipulationcheck)	1	.474	.495	.011
DisclosureForm	(manipulationcheck)	1	.776	.383	.017
Form of disclosure		2	1.886	.164	.079
Form of advertisement		1	.868	.357	.019
Form of disclosure * Form of advertisement		2	1.893	.163	.079
Error		44			
Total		60			

Table 8.
Effects OBA effectiveness – click-through intention (2-way ANCOVA)

Variables		df	F	Sig.	Partial Eta Squared
Product type	(replication factor)	1	.001	.975	.000
Realistic		1	1.117	.296	.025
Reliable		1	.075	.785	.002
Credible		1	1.634	.208	.036
Convincing		1	2.157	.149	.047
Attractive		1	.695	.409	.016
Informative		1	1.046	.312	.023
Advertisement	(manipulationcheck)	1	3.150	.083	.067
Disclosure	(manipulationcheck)	1	5.724	.021	.115
DisclosureForm	(manipulationcheck)	1	.090	.765	.002
Form of disclosure		2	1.764	.183	.074
Form of advertisement		1	.915	.344	.020
Form of disclosure * Form of advertisement		2	1.923	.158	.080
Error		44			
Total		60			

Table 9.
Effects perceptual fluency (2-way ANCOVA)

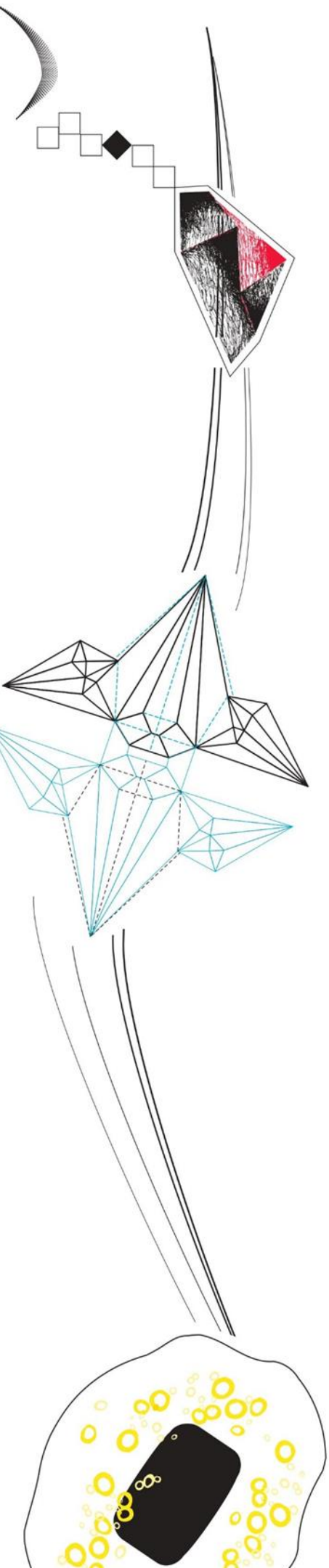
Variables		df	F	Sig.	Partial Eta Squared
Product type	(replication factor)	1	.100	.753	.002
Realistic		1	.658	.422	.015
Reliable		1	.074	.787	.002
Credible		1	.004	.952	.000
Convincing		1	2.977	.091	.063
Attractive		1	1.545	.220	.034
Informative		1	.807	.374	.018
Advertisement	(manipulationcheck)	1	.015	.904	.000
Disclosure	(manipulationcheck)	1	.272	.605	.006
DisclosureForm	(manipulationcheck)	1	.598	.444	.013
Form of disclosure		2	.083	.921	.004
Form of advertisement		1	7.685	.008	.149
Form of disclosure * Form of advertisement		2	.843	.437	.037
Error		44			
Total		60			

Table 10.
Effects disclosures & trust (1-way ANCOVA)

Variables		df	F	Sig.	Partial Eta Squared
Product type	(replication factor)	1	.399	.531	.008
Realistic		1	.048	.828	.001
Reliable		1	6.357	.015	.119
Credible		1	.324	.572	.007
Convincing		1	.858	.359	.018
Attractive		1	.556	.460	.012
Informative		1	1.014	.319	.021
Advertisement	(manipulationcheck)	1	2.073	.157	.042
Disclosure	(manipulationcheck)	1	.395	.533	.008
DisclosureForm	(manipulationcheck)	1	2.413	.127	.049
Form of disclosure		2	.960	.390	.039
Error		47			
Total		60			

Table 11.
Effects congruency effect & trust (2-way ANCOVA)

Variables		df	F	Sig.	Partial Eta Squared
Product type	(replication factor)	1	.361	.551	.008
Realistic		1	.007	.935	.000
Reliable		1	2.532	.119	.054
Credible		1	1.593	.214	.035
Convincing		1	.368	.547	.008
Attractive		1	.020	.887	.000
Informative		1	1.356	.251	.030
Advertisement	(manipulationcheck)	1	2.785	.102	.060
Disclosure	(manipulationcheck)	1	.369	.547	.008
DisclosureForm	(manipulationcheck)	1	4.249	.045	.088
Form of disclosure		2	1.549	.581	.024
Form of advertisement		1	.459	.501	.010
Form of disclosure * Form of advertisement		2	2.138	.130	.089
Error		44			
Total		60			



ONLINE BEHAVIOURAL ADVERTISING: THE CONGRUENCY EFFECT BETWEEN ADVERTISEMENTS AND INFORMATION DISCLOSURES

UNIVERSITY OF TWENTE.