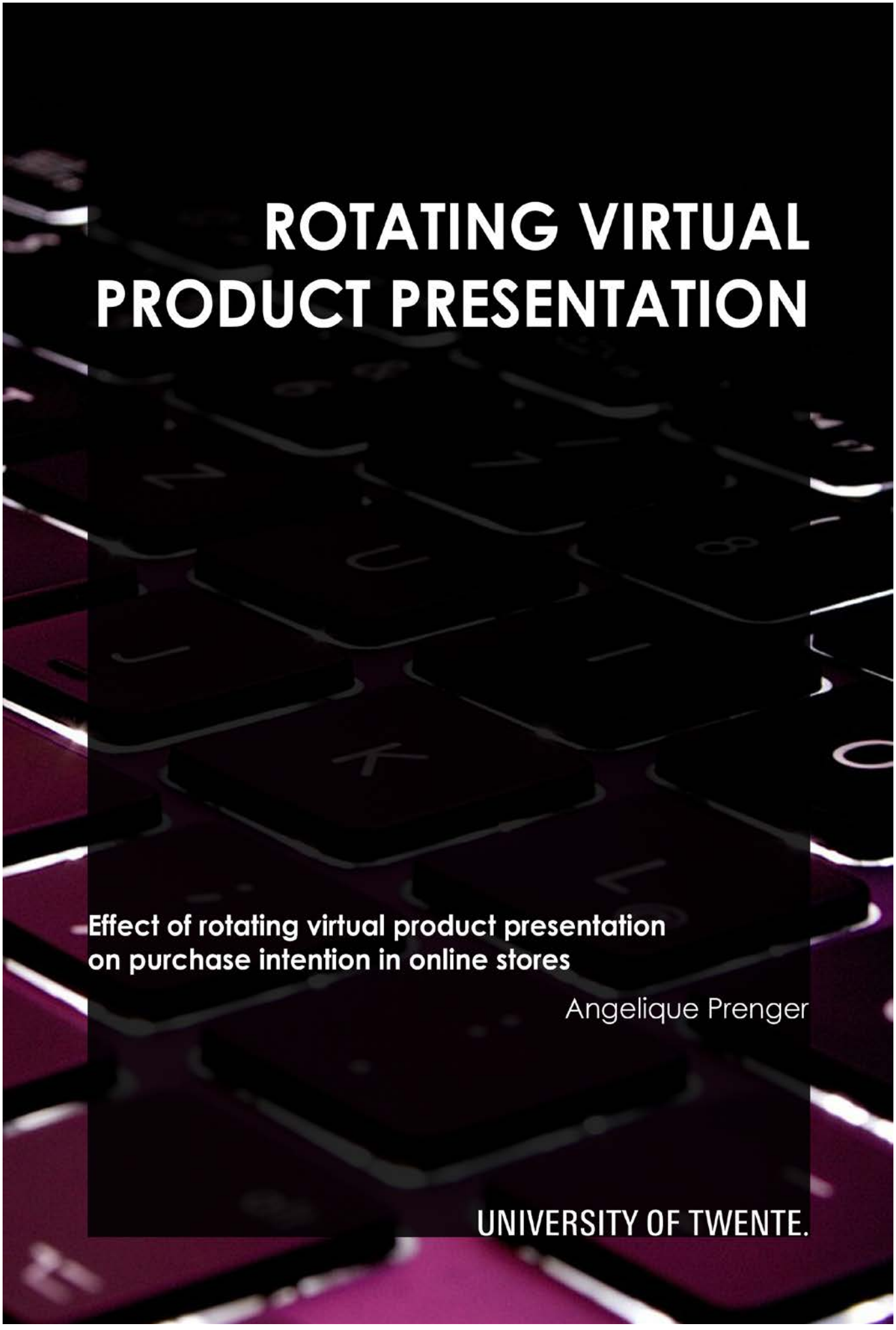


ROTATING VIRTUAL PRODUCT PRESENTATION

Effect of rotating virtual product presentation on purchase intention in online stores

Angelique Prenger

UNIVERSITY OF TWENTE.

Effect of rotating virtual product presentation on purchase intention in online stores

Angelique Henriet Prenger

University of Twente

Faculty of Behavioral, Management and Social sciences

Master Communication Studies

Specialization Marketing Communication and Consumer Behavior

Graduation Committee

Anna Fenko

Thomas van Rompay

Author

Angelique Henriet Prenger

Date

July 4th, 2016

UNIVERSITY OF TWENTE.

Abstract

Online shopping is getting more and more common, a convincing product presentation is therefore crucial. This is where rotating virtual product presentation shows its importance, which is related to a better product understanding and purchase intention (Jiang & Benbasat, 2007; Park, Lennon & Stoel, 2005; Won Jeong, Fiore, Niehm & Lorenz, 2009). This research sheds a new light on virtual product presentation in relationship to online purchase intention. We studied the effect of rotating virtual product presentation on purchase intention, product evaluation, perceived authenticity, product appreciation, and if the situation specific thinking style (SSTS) and impulse buying tendency influence this. We conducted an online survey where respondents were randomly assigned to one of the six conditions, different in product and presentation. Results show that rotating virtual product presentation and SSTS experiential interact, resulting in a higher purchase intention. The two groups of impulse buying tendency reported higher product appreciation and purchase intention when their 'favorite' product was presented in rotating product presentation. Rotating virtual product presentation should be considered by marketers when launching a web store, since it has positive effects on purchase intention for specific groups of consumers.

Keywords: Rotating virtual product presentation, 3D product presentations, product experience, dual processing systems, judgment and decision making, impulse buying tendency, internet shopping, consumer behavior.

Acknowledgements

As I finished by bachelors degree, I was determined to learn more about marketing communications and especially consumer behavior. I've always had a great interest in how the consumers' brain work and how marketing communication can influence this. This made choosing the subject of my master thesis easier: it was a great way to discover even more about this field and I am happy to see the end result.

In this section I would like to thank some people for their support during my study and in particular this last phase. First, my family who stimulated and supported me in the choices I made. Next, I'd like to thank Henriët and Jiske as well: great to have met you guys. We discussed academic topics and helped each other out, but also had a great laugh! Special thanks go to Anna Fenko, for her input and suggestions on this research. I would like to thank Thomas van Rompay as well.

Angelique Prenger,

July 4th, 2016

Index

Effect of rotating virtual product presentation on purchase intention in online stores

Online shopping is getting more and more common and companies are spending great amounts of marketing budget on their product presentation. Marketers are probably not aware that different types of product presentation affect consumers differently and that these product presentations are processed differently. Besides that, consumers have difficulties evaluating product online (Li & Meshkova, 2013), which underlines the necessity of presenting informative and 'rich' product presentations to consumers. More specifically, rotating virtual product presentation could play a key role in this. Rotating virtual product presentation is a three dimensional product presentation in a computer mediated 3D environment (Li, Daugherty & Biocca, 2001). The effects of rotating virtual product presentation on consumers is worthwhile since it informs and contributes to the persuasion to buy the product. Studies agree to this by stating that rotating virtual product presentation trigger more active cognitive and affective reactions than 2D presentations (Li, Daugherty & Biocca, 2002). More specific, a direct effect of rotating virtual product presentation on purchase intention was found (Li et al., 2002). By this, rotating virtual product presentation can be seen as an important element of a successful marketing strategy, especially when focused on how consumers process these presentations and how impulsive and less impulsive consumers evaluate it.

Numerous studies have been conducted in the field of consumer behavior and psychology on various facets of virtual product presentations, as well in combination with decision making theories. An example is a study by Jai, O ´Boyle & Fang, (2014) who studied the effect of image zooming an rotation videos with fMRI and applied the Stimulus-Organism-Response (S-O-R) model. Another example is a study by Choi and Taylor (2014) who did research on 3D images and how this affects low and high 'need for touch' consumers, who like to touch and feel products to evaluate them. However,

they did not incorporate decision making theories as this research does. This shows that elements of our study are familiar, however, we did not find comparable research in the field of virtual product presentation that implemented situation specific thinking style (SSTS) in combination with impulse buying tendencies of consumers.

This study focuses on the effects of product presentation. Specific focus will be on rotating virtual product presentation, which gives a 3D impression of the product. We implemented cognitive experiential self theory (CEST) in our research model, which indicates how rotating virtual product presentation is processed to see how this affects purchase intention. Moreover, we study how this holds for different type of consumers, namely high impulsive and low impulsive consumers. The purpose of this research is to shed a new light on virtual product presentation and consumer behavior, to see how online stores would ideally present products to ultimately reach higher levels of purchase intention. Our research question is as follows: *What is the influence of rotating virtual product presentation on purchase intention, and to what extent do SSTS and impulse buying tendency play a role in this?*

2. Theoretical framework

Shopping online can be convenient for consumers, but only convenience will not guarantee the purchase of an item. The retailer of the web shop must provide the necessary information to facilitate the decision making process, so that the consumer is able to make the best purchase decision. Online product presentation and product presentation in a traditional store is similar, and yet very different. For instance, touching, smelling, tasting, seeing or hearing products gives an impression of the product quality, this sensory information is simple for consumers to experience in a traditional stores since the products are present. These ways of testing the quality and processing product information via sensory information is harder or sometimes not even possible on web sites e.g. touching or smelling products (Vohs & Faber, 2007). This is where the challenge of online product presentation becomes apparent: an alternative has to be presented to replace or meet up the sensory information that is present in traditional stores.

Types of product presentation

Three types of product experience can be classified, first the direct experience, second the indirect experience and lastly the virtual experience. The direct experience is based on the fully interactive experience with a product, which is physical and real. The indirect experience is present when consumers are exposed to e.g. product displays or advertisements and when fully interaction with the product is not possible (Hamilton & Thompson, 2007). Lastly, the virtual experience is an interaction with 3D virtual models (Li et al., 2001, 2002). This type of presentation is more difficult in comparison to direct product experience, since it is challenging to convincingly communicate the qualities of products in an online environment.

2.1 Rotating virtual product presentation

The type of product presentation can have an effect on the shopping experience of the consumer. The virtual product experience is defined as a psychological condition that consumers come in when seeing and interacting with a three dimensional product presentation in a computer mediated 3D environment (Li et al., 2001). Seeing and observing a 3D product presentation may stimulate many of the similar experiences of a traditional store. Grigorovici and Constantin (2004) agree, by stating that virtual product presentation formats enable an impression of presence to the consumer, so that they have a similar product inspection that in a way resembles physical product trial. Although this may be apparent, some authors are also critical by stating that virtual products are not a representation of stores, but rather a simulation of that consumption experience (Li et al., 2001).

Importance of virtual product presentation

Effective product presentation assists the consumer in the purchase decision making when direct product experience is not available. Proper product presentation is crucial and critical since consumers are physically not able to check the product before purchasing. Presenting an interface which creates a vivid experience that is similar to sensory and behavioral experiences of the actual product will likely have a positive effect on approaching behavior towards the product (Fiore & Jin, 2003). More specifically, 3D product presentation is found to trigger more active cognitive and affective reactions than 2D product presentations (Li et al., 2002). These reactions subsequently affect shopping experiences and decision making. Effective product presentation has an inviting effect to consumers to visit the website (Yoo & Kim, 2014). Giving consumers the opportunity to evaluate products via effective product presentation, enables consumer to process information more through the senses (Biocca

& Delaney, 1995) and understanding the product takes mentally less effort (Klein, 2003; Li et al., 2001). Eventually, some sense accessible product characteristics could be perceived as physical (Laroche, Bergeron & Goutaland, 2001). Due to virtual product presentation, consumers will perceive and classify the presented product as more tangible (Laroche et al., 2001; Laroche, Yang, McDougall & Bergeron, 2005; Verhagen, Vonkeman, Feldberg, & Verhagen, 2014). As follows, features of virtual product presentation seem to be contribute to giving a believable product presentation.

Moreover, consumers who encountered 3D visualisation reported higher scores on positive brand attitude and higher purchase intentions when compared to 2D advertisements (Li et al., 2002). More specifically, a direct effect of virtual product presentation on purchase intention was found where consumers who experienced 3D visualisation scored higher on positive brand attitude and higher purchase intentions when compared to 2D advertisements (Li et al., 2002).

Although rotating virtual product presentations lack the opportunity of touching (Li et al., 2001) this type of presentation does enable the visualisation of the product from different angles, where the consumer can actively take the product in by looking at the screen (Verhagen et al., 2014), giving a rich product presentation. This relates to a better product understanding (Jiang & Benbasat, 2007) and a more natural, realistic manner of presenting products (Verhagen et al., 2014). Virtual product presentations can also give the impression of a closer proximity of the product (Verhagen et al., 2014) and offer more cues to consumers and more product information (Lim & Benbasat, 2000; Daugherty, Li & Biocca, 2008). This in turn affects moods, and purchase intention (Park, Lennon & Stoel, 2005; Won Jeong, Fiore, Niehm & Lorenz, 2009).

2.2 Perceived authenticity

The authenticity the product presentation is important: is it a realistic representation of product presentation in a 'real' store? Is the experience more or less comparable? Algharabat and Dennis (2009) state the following: " *Authenticity is* a *psychological state in which virtual objects are presented in 3D in a computer mediated environment and are perceived as actual objects in a sensory way"* (p.3). This definition resembles a sense of simulating the real world, where the virtual product represents products in a shop. When consumers get the impression that the product presentation enables a sense of presence, it gives the impression that resembles physical product trial (Grigorovici & Constantin, 2004).

Clearly, online product presentations may provide the consumers detailed and rich information so that they get a illusion that is close to seeing the actual product in the real world, helping them to evaluate the product (Verhagen et al., 2014). The rotating presentation provides consumers a completer impression, the visual sensory information is richer and easy to see, i.e. checking the side and back of the product (Fiore, Jin & Kim, 2005). Rich product visualization stimulates the online product experience (Li & Meshkova, 2013), an experience close(r) to a traditional store, and is therefore arguably more authentic. Virtual product presentation comes closer to product examination than printed ads for example, since it allows consumers to examine the product thoroughly from different angles (Daughterty et al., 2008). By this, we expect that a more thorough examination by rotating virtual product presentation may result in a better informed consumers, which may support product appreciation.

2.3 Product evaluation

Consumers evaluate products constantly, does it meet up their standards, is the price right and what is the quality? Consumers need information to evaluate the products. How informed a consumer is, affects the consumer's attitude towards the store. Evaluation is about the extent to which someone feels informed about the characteristics and capabilities of a product, which includes the physical, technical characteristics and the quality of the product. Additionally, consumers also want to know how time affects the product, i.e. how the quality is and if colors will fade (Smith, Johnston & Howard, 2011). Feeling informed seems to be a base in the process of product evaluation.

According to the authors, online shops are not allowing consumers to reach a well informed impression of the product, this includes the knowledge of physical characteristics, the fit with personal requirements and how the products stand the test of time. Research has been done on reasons why products are returned on the web, which was related to the limitation in their ability to properly evaluate products that need a closer inspection and evaluation before buying it, e.g. clothes (Peck & Childers, 2003). This may indicate that getting a realistic impression seems to be hard and even problematic for online shoppers, since product information is needed to determine how suitable the product is. (Rotating) virtual product presentation could play a key role in this, since it allows consumers to study and take in the product extensively, giving them a more informed evaluation of the product.

This underlines the necessity of providing the right information to consumers, especially when the web shop is the primary (or only) source of information (Smith et al., 2011). Once again, this underlines the potential benefits of rotating virtual product presentation that is rich in information.

2.4 Product appreciation

Product appreciation is affective in nature and can be described as the extent to which a product can possibly elicit an emotional response to the consumer (Chaudhuri & Holbrook, 2001). Product appreciation plays a vital role in online shopping behavior: the more consumers are excited, the more this has a positive influence on online behavior. Virtual product presentation gives consumers the ability to feel more involved with the shopping experience and it brings arousal as well (Li et al., 2002). In this manner, Jayawardhena and Wright (2009) expect that positive perceptions of web site features will lead to excitement, positive perceptions could possibly be related to virtual product presentation and higher consumer excitement. Subsequently, Li and Meshkova (2013) state that consumer excitement is significantly higher in rich product presentations when compared to a static product interface online. These definitions give a reflection on product appreciation and excitement in a broader sense, however, we will focus on product appreciation relating to online product presentation.

2.5 Dual processing systems

Each individual processes information differently. Knowledge of such differences is useful for understanding and predicting behavior in different domains, such as consumer behavior (Björklund & Bäckström, 2008). Researchers have acknowledged two different processing systems that are underlying for reasoning and decision making: dual processing systems (Shulman, Smith, Silva, Icenogle, Duell, Chein & Steinberg, 2015) also known as System 1, which is fast, automatic and unconscious and System 2 which is slow and deliberate and precise. Other studies categorized this as conscious and controlled (e.g. Kahneman 2003; Stanovich & West, 2008; Norman, 2009), reflective and impulsive (Strack & Deutsch 2004) or as the cognitive system and experiential system (Epstein 2003; Lieberman, Gaunt, Gilbert & Trope, 2002*;* Slovic, Finuncane, Peters & MacGregor, 2004).

Within all the different theories, there is a similarity between all the named concepts, namely the distinction between two thinking styles. The experiential system thrives on high capacity intuitive thoughts and associations acquired by experience. This system operates quickly and automatically. The rational system however, thrives on low capacity reflective thinking, relies on rules obtained from culture or by learning, this system operates relatively slow in a controlled way (Epstein, 2003).

A well known and frequently used theory of dual processing is the elaboration likelihood model (ELM) of Petty and Cacioppo (1986). Two 'routes' of information processing can be employed by individuals, namely the central route and the peripheral route. In the central route, information is processed in an conscious and effortful way to create strong attitudes (Samson & Voyer, 2012). In the peripheral route, emotional messages, product aesthetics or appreciation of the communications source are features that might functions as a shortcut for making a judgment about the product's quality (Samson & Voyer, 2012). Which route is followed, depends on the motivation to process

the information (Petty & Cacioppo, 1986). Another well studied dual processing theory is the heuristic systematic model (HSM) of Chaiken (1980). This dual processing theory also assumes that individuals process information by central or peripheral route. Although the similarities between ELM and HSM seem obvious, there is a difference. HSM was the first model that suggested an interaction between the two routes, which is different to ELM, where only one route can be followed when processing information. This is different from ELM where either the features of the product (central route) or brand (peripheral) route would be employed.

Cognitive experiential self theory

As mentioned, there are different forms and explanations of dual processing systems. This study follows the vision of the cognitive experiential self theory (CEST) of Epstein, which its foundations were presented in the 70s, and still is used in the field of consumer psychology. CEST characterizes two systems: the experiential system and the rational system. Key assumptions of CEST are that the experiential and rational system operate both simultaneously and sequentially, being able to influence one another, however, neither one of the systems generally is superior. This theory has a unique focus on individual differences, which is contrasting to other dual processing theories (Novak & Hoffman, 2009), such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) where only one route can be followed on that moment. According to the theory, the cognitive and experiential system are most effective in different situations and contexts. Moreover, CEST provides rich conceptual descriptions of thinking styles (see appendix E) and has a unique focus on individual differences which makes it different from other dual processing theories.

The experiential system is associative, emotional, easy, fast to implement, instantaneous, outcome orientated, holistic and experienced passively and also hard to understand or to follow but slow to change. This system is relatively automatic and tends to dominate. Despite being automatic, the experiential system is prone to imprecision, bias and inaccuracy, which is contrasting to the rational system that thrives on knowledge and precision (Epstein, 1991). The experiential system has the ability to solve problems that the rational system cannot, such as reacting to real-life problems that are too complex to analyze for the rational system (Epstein, 2003).

The rational system however, is logical, based on rules, process orientated, hierarchical, slower to implement but quicker to be changed, takes high effort, and is conscious. The individual is aware and in control of the process (Epstein 1994, 2003; Hogarth 2002; Kahneman & Frederick 2002). This system operates slower and has the power to correct the experiential system.

Scales for measuring CEST matured through the years, resulting in high reliable scales. Individual preference for the experiential system or cognitive system can be measured with a two-dimensional scale to measure situation specific thinking style (SSTS), developed by Novak and Hoffman (2009) . They ground their work on Epstein's CEST (e.g. Epstein, 2003, 1994, 1991).

SSTS is described as the particular thinking style or thinking orientation that a consumer uses in a specific situation, which can be influenced by the nature of the task itself or by the motivation of the consumer to execute that task (Novak & Hoffman, 2009). SSTS is used to check whether experimental manipulations lead to an intended thinking style (Novak, Hoffman, 2009).

Therefore, we propose the following hypotheses:

H1. Rotating virtual product presentation will positively influence (a) online purchase intentions, (b) product evaluation, (c) perceived authenticity, (d) product appreciation, when compared to picture presentation.

H2. SSTS rational will positively influence product evaluation.

H3. SSTS Experiential will positively influence (a) purchase intention, (b) perceived authenticity and (c) product appreciation.

H4. The effect of rotating virtual product presentation on purchase intention will be influenced by SSTS Experiential.

H5. The effect of rotating virtual product presentation on purchase intention will be influenced by SSTS Rational.

Difference between rational and experiential system

The rational systems tends to prevail when individuals perform abstract thinking while doing tasks such as activities that demand the application of generic principles or deliberation over work, or reflection of the utility of a product rather that the enjoyment of it (Novak & Hoffman, 2009). When the cognitive system is activated, cognitive information is processed more easily, responses such as "I think..." are processed efficiently, which may contribute to the idea that the message was convincing to the individual. Also hazy, rather than vivid images seem to trigger the cognitive system. Additionally, when individuals need to remember a lot of information, the cognitive

system is triggered (Lee, Amir & Ariely, 2009). Cognitive involvement is related to rationality and thinking, it is activated by utilitarian or cognitive motives (Jiang, Chan, Tan & Chua, 2010). Cognitive involvement is higher when consumers are exposed to website characteristics such as product description and images, price of the product, delivery and returning policy (Eroglu, Machleit, & Davis, 2003).

The experiential systems however, tends to prevail when individuals perform activities that ask for creativity or associations. An example of such a typical task is thinking about how to improve the enjoyment of a product, thus, creative thinking (Novak & Hoffman, 2009*).* Also, individuals rely more on the experiential system when they trusted their feelings or intuition (Hogarth, 2002; Novak & Hoffman, 2009). Additionally, when the experiential style was reported, individuals performed better on tasks that require creativity, humor, aesthetic judgment, visualisation, and intuition or thinking about creative uses of common objects (Norris & Epstein, 2011). Positive emotion states may lead to increased time spent on the web site, higher spending and a higher appreciation for the store (Babin, Darden & Griffin, 1994), this may lead to higher purchase intentions on the web shop.

Product type and information processing

The type of product that a consumer is looking for, also alters the type of information that is needed: different product types ask for a different type of information by consumers (Dahlén, Rasch & Rosengren, 2003). Product information can be categorized in hedonic or utilitarian terms (Hirschman & Holbrook, 1982; Okada, 2005). Therefore, consumers process information from a hedonic or utilitarian angle, depending on the goals (Shiv & Fedorikhin, 1999). Pleasure related goals are associated with hedonic products, where utilitarian products are associated with functionality (Chitturi, Raghunathan & Mahajan, 2008). Hedonic products are associated with easier

imagination and spontaneous positive affect (Gill, 2008). Additionally, processing of hedonic products takes less processing (Klein & Melnyk, 2014). Utilitarian products require a problem solving approach, which implies looking for information that suits the process (Jiang et al., 2010). Hence, the evaluation and information processing of utilitarian products stems from a more effortful cognitive process which is processed on a deeper level (Homburg, Koschate & Hoyer, 2006). When hedonic arguments are given for utilitarian products, consumers may go from cognitive processing to affective processing (Dhar & Wertenbroch, 2000; Gill, 2008). In relationship to virtual product presentation, rotating presentations serves both functional and hedonic roles (Kim & Forsythe, 2008).

Congruence between the cognitive or affective thinking style and the cognitive or affective character of the message has an impact on the persuasiveness of the message (Fabrigar & Petty, 1999). This implies that the character of the message and the thinking style ideally would align so that this is more persuasive. Moreover, websites with higher active control are likely to stimulate higher levels of cognitive involvement, this applies for hedonic and utilitarian products (Jiang et al., 2010).

2.6 Impulse buying tendency

Literature covers the traditional field of impulse buying, which is applied to traditional retail stores. However, limited research is available on psychological mechanisms that are underlying for online impulse purchases (Liu, Li & Hu, 2013). The focus is shifting to online shopping, hence, a better and more constructed understanding of impulse shopping on the internet is becoming increasingly necessary (Floh & Madlberger, 2013; Liu et al., 2013; Madhavaram & Laverie, 2004). We are in particular interested to see how impulse buying tendency and rotating virtual product presentation relate to each other, and ultimately, how this relates to purchase intention.

To better understand impulse buying tendency, it is important to know its basis, namely impulse buying which defined as sudden, irresistible, hedonically complex behavior, where the decision process goes rapidly, hindering a thoughtful and conscious consideration of alternative information and choice (Beatty & Ferrell, 1998). Impulse buying goes unintended, unreflective and immediate, accompanied by a feeling of desire or calling to buy the product (Jones, Reynolds, Weun & Beatty, 2003; Rook, 1987). Online shoppers are also more impulsive than shoppers in retail stores (Donthu & Garcia, 1999; Park, Kim, Funches & Foxx, 2012).

A study proposed that four factors influence impulse buying behavior (Muruganantham and Bhakat, 2013). Firstly, external stimuli such as store characteristics, sensory stimulations, ways of presentation, sales promotions or the shopping channel (Muruganantham & Bhakat, 2013; Stilley, Inman & Wakefield, 2010a; 2010b). Online marketing stimuli simplify the ability to shop impulsively, it allows and causes shoppers to be less aware of possible risks (Donthu & Garcia, 1999; Madhavaram & Laverie, 2004). This may be due to the fact that online transactions feel more distant than having a transaction with cash, which results in overspending since is does not feel as spending money (Dittmar, Long, & Meek, 2004). Also browsing behaviour on websites

may contribute or lead to impulse buying (Park et al., 2012). Presenting sensory characteristics to consumers in the online shopping environment has a direct effect on online impulse buying for apparel, meaning that sensory aesthetics attributes encourage impulse buying (Dawson & Kim, 2009; Madhavaram & Laverie, 2004; Youn & Faber, 2000). Assuming that virtual product presentation offers a more complete range of sensory characteristics, we could suggest that rotating virtual product presentation and impulse buying tendency go hand in hand and may even reinforce each other.

Secondly, internal stimuli such as impulsiveness, enjoyment, variety seeking and self identity also influence impulse buying behavior. For instance, impulsive shoppers buy products spontaneously, do not have a considerate thought before buying and even are slightly reckless with buying (Rook & Fischer, 1995).

Thirdly, the situational and product related factors, e.g. the availability of time, money, but also product characteristics. A study of Kim (2008) showed that the likelihood of doing an impulse buy, is mostly with dominant sensory products such as accessories, jewelry and cosmetics. Especially clothes are one of the most impulsively purchased items on the web (Rhee, 2007).

Lastly, demographics, or so called socio-cultural factors such as gender, age, education, culture and income play a role as well.

Personality trait

This study follows the vision of Verplanken and Herabi (2001), where cognitive and affective aspects are distinguished to measure general impulse buying tendency. Cognitive aspects of impulse buying tendency are the tendency to not deliberate, think or plan when purchasing products. This is contrasting to affective aspects of impulse buying tendency such as feelings of pleasure and excitement, the urge to purchase and having difficulty controlling this. Impulse buying tendency is therefore seen as a

personality trait, which is different for each individual (Beatty & Ferrell, 1998; Rook & Fisher, 1995; Verplanken & Herabi, 2001).

Individuals with this personality trait show behavior that is spontaneous, unreflective and immediate. Additionally, the impulse buying tendency trait is assumed to relatively stable, highly consistent and responsible and related to behavior (Rook & Fisher, 1995). Since impulse buying tendency is related to behavior, it would be interesting to see if impulse buying tendency also relates to purchase intention, especially after consumers saw a rotating product presentation.

We therefore propose:

H6. The effect of rotating virtual product presentation on purchase intention will be influenced by impulse buying tendency.

3. Method

3.1 Research design

This study employs a 2 x 2 design with the following factors: (1) type of virtual product presentation (rotating and picture), (2) product (printer and bracelet). The dependent variables are purchase intention, product evaluation, perceived authenticity and product appreciation. Situation specific thinking style (experiential and cognitive) and impulse buying tendency (low and high) served as moderators.

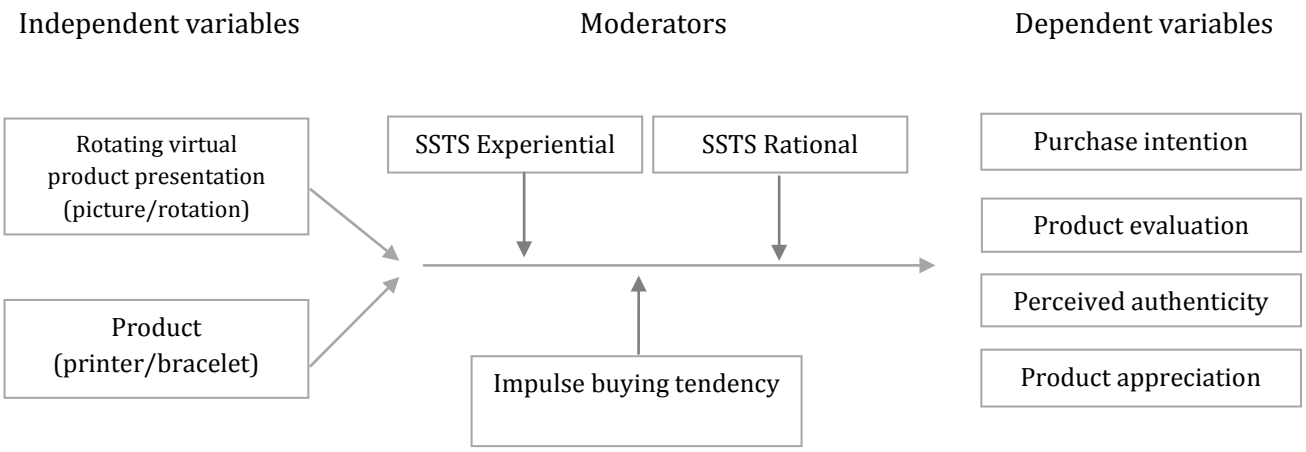


Figure 1: Hypothesized model of study

3.2 Participants

A total of 370 people volunteered to participate in the study. 134 Observations were taken out since their form was not, or not properly filled out. This resulted in a new total of 236 observations of which 73 were male and 163 female. The participants were aged between 18 and 85 (M=37, SD=13.9). The majority of the respondents is aged between 18 and 35 years (54%) as mentioned in table 1. Then, 43% is educated on the higher professional education level. The six different conditions were randomly and equally exposed to the participants, meaning that every respondent evaluated one condition. For the product bracelet, female and male bracelets were presented to fit the respondents' gender. Male and female conditions of the bracelet were combined afterwards, resulting in four conditions. By this, each condition was evaluated by 56 to 64 respondents (see appendix D).

Table 1
Respondents characteristics

Demographics		N	%
Age:	18 thru 25 years	65	28%
	26 thru 35 years	62	26%
	36 thru 45 years	32	14%
	46 thru 55 years	42	18%
	56 thru 65 years	31	13%
	66 thru 75 years	3	1%
	76 thru 85 years	1	<1%
Total:		236	100%
Education:			
	Primary school	1	<1%
	Secondary school	28	12%
	Secondary vocational education	69	29%
	Higher professional education	101	43%
	University education	37	16%
Total:		236	100%

3.3 Stimulus material

The manipulation of the product presentation was achieved through the development of six experimental web stores (see appendix F for a full overview). The two tested products (printer and bracelet) were presented by picture and by rotating product presentation. Printers were chosen as an utilitarian product and a bracelet as a hedonic product. All web shops were identical, expect for the manipulations (products and presentations) in order to properly isolate the type of presentation as the influencing variable. Only a small text description of the products was given e.g. "Bracelet made out of leather straps with a metal clip" and "Color inkjet printer for A4-paper". Additionally, identical article numbers were added to all the web shops. Female and male bracelets were presented, since this product is gender specific. Each participant was randomly assigned to one of the conditions, meaning that females could either see a female

bracelet by picture of rotating product presentation, or a printer presented by picture or rotating product presentation. The same applies for men, they would then see a male bracelet in one of the two presentation methods, or a printer presented by picture or rotating product presentation. The rotating virtual product presentation was presented by video without sound, with simple controllable actions such as playing and pausing the video. The web shop functioned as a normal web shop, however, the price was removed, since this could affect the evaluation of the presented product. Participants could use the button "order now", but would then directly get instructed to return to the questionnaire.

After seeing the manipulations, participants were asked to fill out questions about impulse buying tendency, thinking style, purchase intention, product evaluation, perceived authenticity and product appreciation.

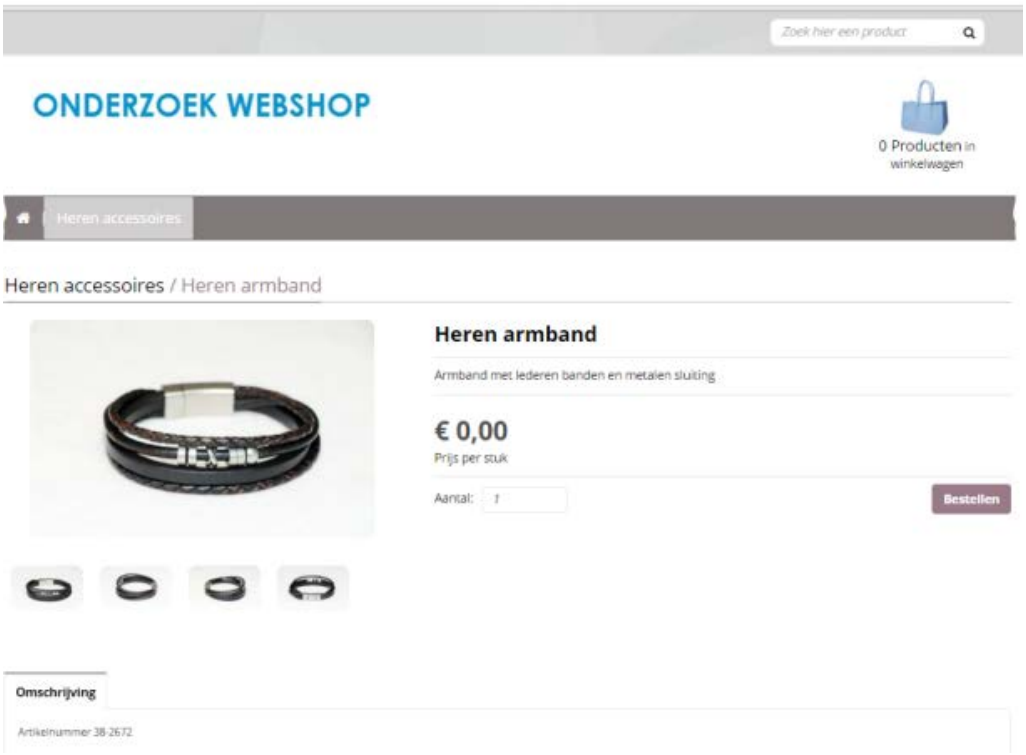


Figure 2. Example of stimulus material, male bracelet picture

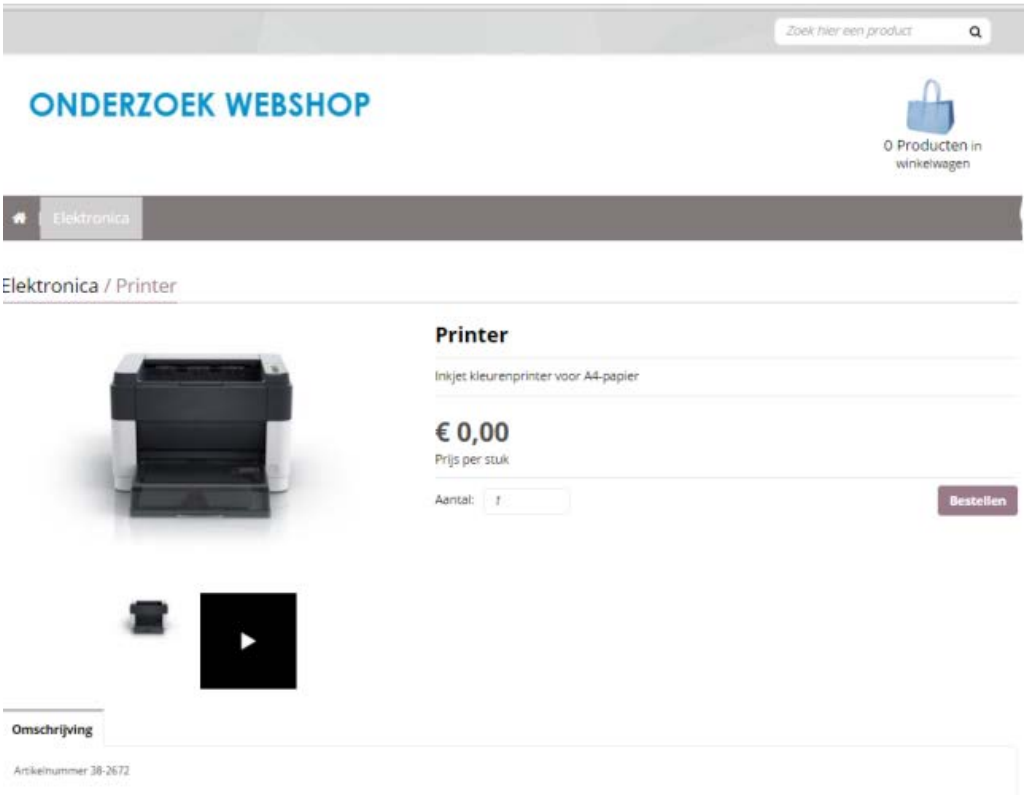


Figure 3. Example of stimulus material, printer rotating virtual product presentation

3.4 Research instruments and measures

The variables product evaluation, perceived authenticity, product appreciation, purchase intention and situation specific thinking style were measured for all conditions. The variable impulse buying tendency was asked at the end of the survey. All variables were measured on a 7-point Likert scale, varying from 'totally disagree' to 'totally agree'. Except the extra variable product type, which was measured on a bipolar scale.

Table 2
Scale reliability of variables

	N	N-Items	Rel. (α)
Measurement scales:			
Purchase intention [a)]	236	4	0,93
Product evaluation [a)]	236	6	0,90
Perceived authenticity [b)]	236	4	0,84
Product appreciation [a)]	236	6	0,92
Impulse buying tendency [a)]	236	10	0,80
SSTS Rational [a)]	236	5	0,88
SSTS Experiential [a)]	236	5	0,75
Product type utilitarian [b)]	236	4	0,91
Product type hedonic[b)]	236	4	0,86
Product complexity [a)]	236	5	0,69

[a)] Measured on a 7-point Likert scale (1=strongly disagree/ 7=strongly agree)
[b)] Measured on a bi-polar scale (helpful/unhelpful, not fun/fun)

Purchase intention - Purchase intention was measured by scales adapted from a study of Lee and Lee (2009). Examples of items are: 'I am positive towards buying this product' and 'I have the intention of buying this product' and were measured on a seven point Likert scale (1=fully disagree, 7=fully agree).

Product evaluation - The items tested to what extent the respondent were able to form a impression or evaluation of the presented product and its presentation. Examples of items are: 'The way the product was presented gives me an impression of its quality' and 'The way the product was presented gives me an impression of what the product looks like'. Product evaluation was measured by a scale created by Smith, Johnston and Howard (2011) on a seven point Likert scale (1=fully disagree, 7=fully agree).

Perceived authenticity - We tested to what extent the respondents found the product presentation genuine, as if they would see the products in a retail store. Examples of items are: 'This product presentation gives me the impression as if I am seeing it in a real store 'and 'This product presentation lets me see the product as if it was a real product'. Perceived authenticity was measured by a scale created by Algharabat and Dennis (2009) on a seven point Likert scale (1=fully disagree, 7=fully agree).

Product appreciation - Examples of items are: 'I would like this product', 'I felt excited about the item' and 'This product would fit my taste'. Items of product appreciation were adapted from Beatty and Ferell (1998) and Lee and Lee (2009) and measured on a seven point Likert scale (1=fully disagree, 7=fully agree).

Impulse buying tendency - Impulse buying tendency was measured by a scale created by Verplanken and Herabi (2001). The scale estimated consumers' impulse buying tendency, as a personality trait. Examples of items are 'It is a struggle to leave nice things I see in the shop', 'I am reckless in buying things' and 'If I see something new, I want to buy it.' and were measured on a seven point Likert scale (1=fully disagree, 7=fully agree). However, due to the relatively small sample size, we used a median split to divide groups into low and high impulse buying tendency.

SSTS Rational - Situation Specific Thinking Style (SSTS) was measured by the two dimensional scale of Novak and Hoffman (2009), which consists out of SSTS Rational and SSTS experiential. Examples of items are : 'I figured things out logically' and 'I was aware of my thinking process'. Items were measured on a seven point Likert scale (1=fully disagree, 7=fully agree).

SSTS Experiential - Similar to SSTS Rational, SSTS Experiential was asked at the end of the survey. Examples of items are : 'I used my emotions as a guidance' and 'I relied on my first impressions'. Items were measured on a seven point Likert scale (1=fully disagree, 7=fully agree).

Product type - We added an extra scale which tested if the printer was indeed seen as utilitarian and if the bracelet was seen as hedonic. Items were measured on a 7-point bipolar scale. Examples are 'helpful/unhelpful', 'not fun/fun', 'practical/not practical', 'enjoyable/unenjoyable'. (Hirschman & Holbrook, 1982 as cited by Voss, Spangenberg & Grohmann, 2003).

Product complexity - An extra scale was added to see if the products had similar levels of complexity. Examples are 'I need more information about this item to make myself a clear idea of what it is' and 'The is not the sort of product that is easy to picture' (Laroche et al., 2001).

Moreover, we collected additional variables, including age, gender and education. One scale (perceived product tangibility, 3 items; α=.65) was not included since it was not reliable enough. For the statistical analyses, mean scores of each scales were calculated.

3.5 Procedure

An online survey was conducted with the survey tool 'Qualtrics'. Participant were asked to fill out the questionnaire voluntarily by e-mail and social network sites. This proved to be an convenient way of sampling and reaching sufficient enough respondents in a short(er) time span. Participants were instructed to respond to their first insights and not over think their decisions for too long. Before starting the questionnaire, questions about age and gender were asked since the stimulus material of the bracelets were gender specific. The online questionnaire contained a direct link to a fictional web shop, which was specially created for this study. Before visiting the web shop, participants were instructed: "By clicking on this link, you will enter a fictional web shop. Visit the web shop like you would normally do, by looking around and clicking. Ordering product isn't necessary. Please return after completion. Please keep this web shop in mind, while answering the questions". A conformation question was added "I visited the web shop" before the next questions were showed.

Questions about purchase intention, product evaluation, perceived authenticity, product appreciation and situation specific thinking style were asked after the respondent visited the web shop. At the end, questions were asked about the respondents' impulse buying tendency in general.

4. Results

The results of the research are twofold, data was analyzed by multivariate test of variance (MANOVA) and multiple regression with the statistical program SPSS. By MANOVA, the effect of rotating virtual product presentation on purchase intention, product evaluation, perceived authenticity and product appreciation was analyzed. Further, we analyzed the effect of SSTS rational and experiential on the dependent variables. Additionally, the moderating effect of SSTS experiential, SSTS rational and impulse buying tendency (IBTlow and IBThigh) was analyzed as well. An alpha level of 0.05 was used.

4.1 Purchase intention

The first dependent variable, purchase intention revealed a significant main effect for SSTS experiential (F(1,226)=17.299, p<.001) and SSTS rational (F(1,226)=9.379, p=.002). No significant main effect for product (F(1,226)=3.482, p=.063) and presentation (F(1,226)=.002, p=.969) was revealed. However, impulse buying tendency was found to be significant (F(1,226)=5.267, p=.023). To be more specific, for IBThigh, purchase intention was higher (M=3.3) than IBTlow (M=2.9), meaning that people with a higher impulse buying tendency have a higher purchase intention.

There was a significant interaction effect between product and impulse buying tendency (F(1,226)=6.185, p=.014) on purchase intention. For the lower impulse buying tendency group, purchase intention was higher for the printer (M=3,3) when compared to the bracelet (M=2,5). For the higher impulse buying tendency group, purchase intention was higher for the bracelet (M=3,4) when compared to the printer (M=3,3). No significant interaction effect between product and presentation was found (F(1,226)=.480, p=.489) nor for presentation and impulse buying tendency (F(1,226)=1,717, p=.191).

We found a marginal significant interaction effect between product, presentation and impulse buying tendency on the dependent variable purchase intention ($F(1,266)=3.785$, $p=0.053$). For the lower impulse buying tendency group, purchase intention for the printer was more or less equal (difference of .004) when presented by picture (M=3.3) when compared to rotating virtual product presentation (M=3.3). Purchase intention for the bracelet was higher when presented by picture (M=2.7) versus rotating virtual product presentation (M=2.3).

For the group with a higher impulse buying tendency, purchase intention was higher for the printer when presented by picture (M=3.4) when compared to rotating virtual product presentation (M=3.2). For the bracelet however, purchase intention was higher when presented by rotating virtual product presentation (M=3.8) when compared to presentation by picture (M=3.0).

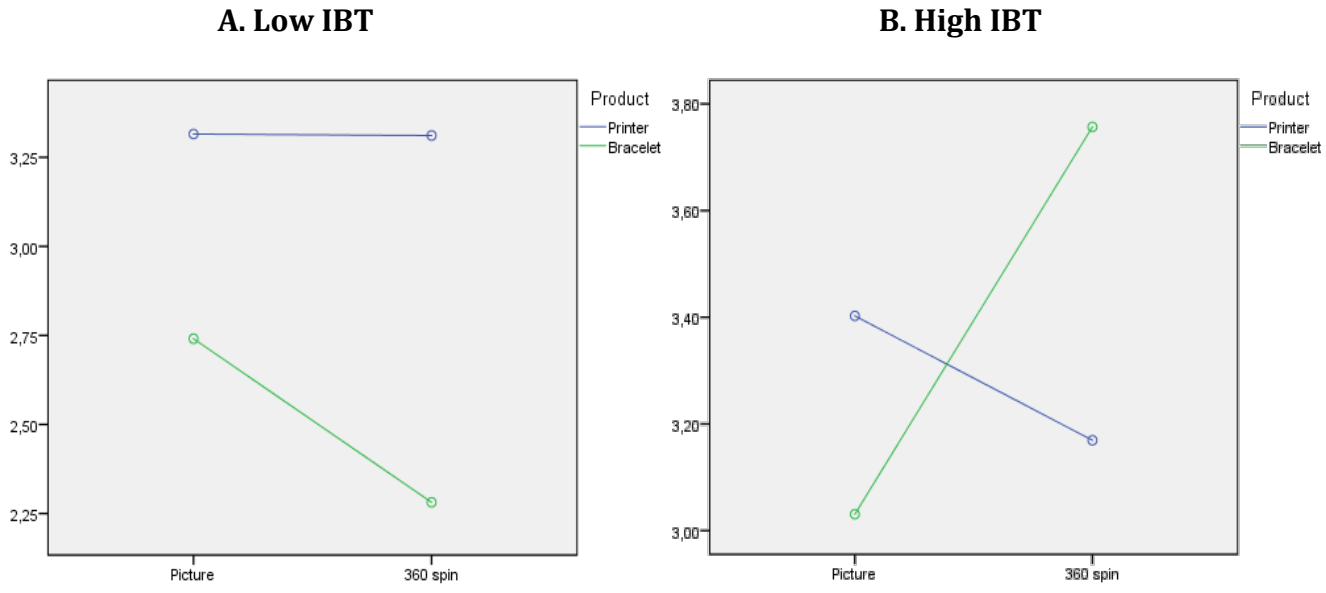


Figure 4. Interaction effect of product, presentation and (A) low impulse buying tendency and (B) high impulse buying tendency, on purchase intention

Additionally, we found a significant interaction between presentation and SSTS experiential on purchase intention (F(1,228)=3.964, p=.048), to be more specific, purchase intention was slightly higher when presented by rotating virtual product presentation (M=3,2) when compared to product presentation by picture (M=3,1).

4.2 Product evaluation

When focusing on the second dependent variable, product evaluation, a significant main effect of SSTS experiential F(1,226)=25.388, p=<.001), product (F(1,226)=11.159, p=.001) and impulse buying tendency (F(1,226)=5.680, p=.018) was revealed. For product, the bracelet scored higher (M=4,0) than the printer (M=3.5) on the 7-point Likert scale of product evaluation. For impulse buying tendency, IBThigh scored higher (M=3.9) than IBTlow (M=3.5) on the 7-point Likert scale of product evaluation, meaning that people with a high(er) impulse buying tendency evaluated the products higher. We did see a marginal significant main effect for SSTS rational (F(1,226)=3.719, p=.055). No significant effect of presentation on product evaluation (F(1,226)=.526, p=.469) was found.

We found a marginally significant two way interaction effect between product and SSTSExp on product evaluation (F(1,228)=3.320, p=.07). Product evaluation of the bracelet was higher (M=4,1) in comparison to the product evaluation of the printer (M=3,4).

4.3 Perceived authenticity

For the dependent variable, perceived authenticity, there was a significant main effect for SSTS experiential (F(1,226)=20.641, p=<.001), SSTS rational (F(1,226)=7.105, p=.008), product (F(=1,226)=5.324, p=.022) and impulse buying tendency (F(1,226)=6.848, p=.009). No significant main effect of presentation (F(=1,226)=.018, p=.893) was revealed.

No interaction effects for the dependent variable perceived authenticity have been found. For product, the bracelet came across as more authentic (M=4.5), versus the printer (M=4.1) on the 7-point Likert scale. For impulse buying tendency, the people with a higher impulse buying tendency evaluated the products as more authentic (M=4.5) versus people with lower impulse buying tendency (M=4.1).

4.4 Product appreciation

A significant main effect for SSTS experiential was revealed (F(1,226)=16.794, p=<.001) as well for SSTS rational (F(1,226)=5.740, p=.017). Product (F(1,226)=.020,p=.887), presentation (F(1,226)=.700, p=.404) and impulse buying tendency (F(1,226)=2.094, p=.149) revealed no significant main effect.

There was a significant interaction between product and impulse buying tendency (F(1,226)=4.622, p=.033). For the lower impulse buying tendency group, the printer was appreciated more (M=3.7) when compared to the bracelet (M=3.3). For the higher impulse buying tendency group, the bracelet was appreciated more (M=3.9) when compared to the printer (M=3.5).

A three way interaction between product, presentation and impulse buying tendency for product appreciation was revealed ($F(1,266)=4.561$, $p=.034$) (see appendix G). We found that for the lower impulse buying tendency group, for product, printers were more appreciated when presented by rotating virtual product presentation (M=3.8) versus the presentation by photo (M=3.5). Moreover, the bracelet was appreciated more when presented by picture (M=3.6) when compared to rotating virtual product presentation (M=3.0). We found contradicting results for the higher impulse buying tendency group, for product, printers were more appreciated when presented by pictures (M=3.7) versus rotating virtual product presentation (M=3.4). Bracelets however, are appreciated higher when presented by rotating virtual product presentation (M=4.0) when compared to presentation by picture (M=3.9).

4.5 Hedonic or utilitarian and product complexity

An independent t-test was conducted to compare the product complexity of the printer and bracelet. There was a significant difference in the score for printer (M=3.6, SD=.89) and bracelet (M=4.48, SD=1.17) conditions; t(234)=-6.39, p=<.001. Another independent t-test was conducted to compare hedonic aspects of the printer and bracelet. There was a significant difference in scores for the printer (M=3.7, SD=1.11) and bracelet (M=4.0, SD=1.39) conditions; t(234)= -2, p=.047. Lastly, we compared utilitarian aspects in printer and bracelet conditions. There was a significant difference in scores for the printer (M=4.9, SD=1.27) and bracelet (M=3.1, SD=1.19) conditions; t(234)=11.38, p=<0.001. This means that printers and bracelets are significantly different in product complexity, specifically that bracelets are more complex than printers. This means that we must be somehow conservative interpreting the results since this difference in complexity may affect scores. Moreover, the bracelet was confirmed to be seen as hedonic and the printer to be utilitarian.

4.6 Predictors and moderating effects

Additionally, a multiple regression was calculated to examine the predictors of purchase intention. A significant regression equation was found ($F(2,233)=266,02$, $p<.001$), with a R^2 of .69. Both product appreciation and product evaluation were significant predictors of purchase intention. Meaning that higher levels of product appreciation and product evaluation are associated with higher levels of purchase intention.

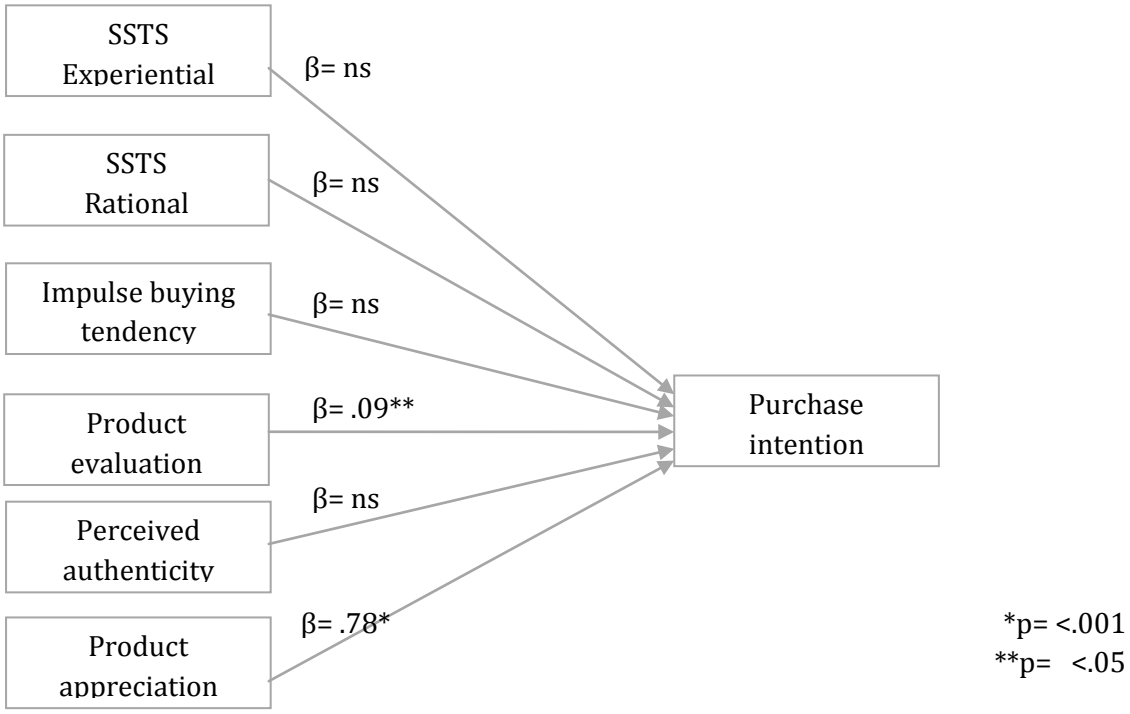


Figure 6. Multiple regression on purchase intention

5. Discussion

We examined the effect of rotating virtual product presentation on purchase intention, product evaluation, perceived authenticity and product appreciation. Situation specific thinking style (experiential and rational) and impulse buying tendency served as moderators. By this, we will answer the formed research question: *What is the influence of rotating virtual product presentation on purchase intention, and to what extent do SSTS and impulse buying tendency play a role in this?*

Table 3
Overview of hypotheses and results

Hypothesis	*Predicted effect*	*Confirmed (Yes/No)*
Hyp. 1	Rotating virtual product presentation will positively influence (a) online purchase intentions, (b) product evaluation, (c) perceived authenticity, (d) product appreciation, when compared to picture presentation.	(a) No (b) No (c) No (d) No
Hyp. 2	SSTS rational will positively influence product evaluation.	No
Hyp. 3	SSTS Experiential will positively influence (a) purchase intention, (b) perceived authenticity and (c) product appreciation.	(a) Yes (b) Yes (c) Yes
Hyp. 4	The effect of rotating virtual product presentation on purchase intention will be influenced by SSTS Experiential.	Yes
Hyp. 5	The effect of rotating virtual product presentation on purchase intention will be influenced by SSTS Rational.	No
Hyp. 6	The effect of rotating virtual product presentation on purchase intention will be influenced by impulse buying tendency.	No

We (partially) confirmed several hypothesis in the results section. First, we will cover the outcomes of the independent variable product. There was a significant main effect for product evaluation and perceived authenticity.

Second, for the independent variable product presentation, no significant main effects were revealed. By this, hypothesis 1a, 1b, 1c, 1d cannot be confirmed. These

results were different from what we expected, since rotating virtual product presentation facilitate consumers by presenting products in a more natural, real and realistic manner (Verhagen et al., 2014), offering consumers product information as well (Daugherty et al., 2008; Lim & Benbasat, 2000). This will likely be beneficial to approaching behavior towards the product (Fiore & Jin, 2003). More specific, virtual product presentation has an direct effect on purchase intention (Li et al., 2002). We suspect that this unexpected result may have to do with the sample size and/or presented stimuli. Either way, this opens new questions for the research of this field. We therefore suggest to do further research with more respondents and more manipulation material, such as various product types.

However, we did find interesting interaction effects for different thinking styles. We did see a marginal significant main effect for SSTS rational, therefore hypothesis 2 SSTS rational positively influences product evaluation, cannot (completely) be confirmed. We did expect a significant main effect because the interactive, lifelike and vivid nature of 3D product presentation stimulates the mental processing when seeing a sensory rich mediated environment (Daugherty et al., 2008). In particular, we expected the mental processing to be about taking the product in on a controlled and effortful way, which could encourage evaluation. However, it shows that SSTS rational somehow has an effect on product evaluation.

Further, hypothesis 3a, SSTS experiential positively influences purchase intention, can be confirmed. Also hypothesis 3b, SSTS experiential positively influences perceived authenticity, can be confirmed. As well, hypothesis 3c, SSTS experiential positively influences product appreciation, can be confirmed. This shows that experiential thinking style affects purchase intention, perceived authenticity and product appreciation. Although this does not directly relate to the research question, it shows that experiential processing is important. Marketers could think about specific

elements of product presentation that could possibly support experiential thinking, such as happy sounding music to support a more emotional, holistic, associative way of processing (Epstein, 1991) to tie it all together to support experiential thinking. This would in turn be beneficial for purchase intention, perceived authenticity and product appreciation.

We found a significant interaction between presentation and SSTS experiential on purchase intention, where purchase intention was slightly higher when presented by rotating virtual product presentation when compared to presentation by picture. By this, hypothesis 4 is confirmed: the effect of rotating virtual product presentation on purchase intention is influenced by SSTS Experiential. This shows that rotating virtual product presentation, when processed experientially, reveals higher levels of purchase intention. This makes sense, since consumers use rotating virtual product presentation to have more fun, enjoyment and entertainment during their online shopping (Fiore et al., 2005; Kim & Forsythe, 2008). Moreover, virtual product presentation is directly related to purchase intention (Li et al., 2002). The experiential system of SSTS relies on experience, emotion and intuition (Epstein, 1991), the rotating virtual product presentation may facilitate or fit this processing method and ultimately have beneficial effects on purchase intention. And so, experiential thinking style and rotating virtual product presentation proved to be a successful combination in order to reach higher levels of purchase intention.

However, we did not find a significant interaction between presentation and SSTS rational on purchase intention. By this, hypothesis 5 cannot be confirmed. We expected that rotating virtual product presentation would facilitate consumers in gathering relevant information and that this would translate in higher purchase intention. Perhaps that SSTS rational in general relates to lower levels of purchase intention, which could possibly explain this result.

We did not find statistical interaction between presentation and impulse buying tendency on purchase intention, by this hypothesis 6 cannot be confirmed. We did not expect this outcome because virtual product presentation presents sensory characteristics in the online shopping environment which has a direct effect on online impulse buying (Dawson & Kim, 2009; Madhavaram & Laverie, 2004; Youn & Faber, 2000).

An interesting marginal significant interaction effect was found between product, presentation and impulse buying tendency on purchase intention. Individuals with lower levels of impulse buying tendency reported higher purchase intention when both products where presented by picture (NB: difference between picture and rotation is .004). Presentation by picture might facilitate them in studying the product in a slower pace, fitting to a more reflective style that rational shoppers prefer (Rook & Fischer, 1995).

Contrary, individuals with higher levels of impulse buying tendency reported higher purchase intention when the printer was presented by picture. However, purchase intention of the bracelet was higher when presented by rotating product presentation. Perhaps the congruence between the conservative nature of the printer and conservative nature op picture felt logical. This can be explained by the fact that different products alters the type of information that is needed (Dahlén et al., 2003). This way, rotating product presentation, higher impulse buying tendency and product type reinforce each other, resulting in a higher purchase intention. This shows that marketers should be aware of the added value of rotating virtual product presentation in their web store.

A three way interaction between product, presentation and impulse buying tendency for product appreciation was revealed. Individuals with lower impulse buying tendency appreciated printers more when presented by rotating product

presentation, the bracelet was appreciated more when presented by picture. On the contrary, we found contradicting results for people with higher impulse buying tendencies, here, printers are appreciated more when presented by picture. Bracelets scored higher when presented by rotating product presentation. This means that impulsive consumers prefer the presentation of functional products by picture presentation. They appreciated bracelets better when presented by rotating product presentation. Once again, we think that this may be because people use rotating virtual product presentation for fun, joy and entertainment (Kim & Forsythe, 2007) which fits the 'fun' character of the product, and therefore the product is appreciated higher. High impulsive people might look for congruence between functional presentation (picture) and functional product (printer) and fun orientated (rotating product presentation) with a fun product (bracelet), which is similar to results of a study by Fabrigar and Petty (1999). All in all, we can conclude that the two groups of IBT appreciated their 'favorite' more when presented by rotating virtual product presentation. This is an interesting conclusion, since we noticed the same pattern for purchase intention.

An explanation for this pattern may be that impulsive individuals revealed higher scores in general, for example, individuals with higher impulse buying tendency evaluated the products as more authentic, when compared to people with lower impulse buying tendencies. Additionally, individuals with higher levels of impulse buying tendency evaluated the products higher as well. This might have to do with the fact that individuals with higher impulse buying tendency are less considerate in evaluation (Rook & Fischer, 1995) and show more spontaneous behavior (Sharma, Sivakumaran, & Marshall, 2010) meaning that overall, they are less critical and might report higher product evaluation. Put differently, they could possibly feel quicker informed than lower impulse buying tendency groups and therefore report higher product evaluation. This could indicate that consumers with different levels of impulse buying tendency perceive

product presentations differently.

The main goal of this research is to see the effects of rotating virtual product presentations, in particular on purchase intention. The results show that rotating virtual product presentation on itself did not reveal main effects on the dependent variables, which was unexpected as mentioned before. This does not mean that rotating virtual product presentation is inefficient, the opposite is true for specific groups. Individuals with lower levels of impulse buying tendency reported higher purchase intention when printers and bracelets when presented by picture. Contrary, individuals with higher levels of impulse buying tendency reported higher purchase intention when the printer was presented by picture. However, purchase intention of the bracelet was higher when presented by rotating product presentation. Additionally, our study reveals that when rotating virtual product presentation is processed by SSTS experiential, higher levels of purchase intention were revealed. This could mean that rotating virtual product presentation and SSTS experiential may reinforce each other, and might together have a pulling effect on purchase intention. Interesting as well is thethree way interaction between product, presentation and impulse buying tendency for product appreciation. Here, less impulsive individuals appreciated printers more when presented by rotating virtual product presentation. They appreciated bracelets more when presented by picture. Results for the impulsive group was contradicting, here, printers were more appreciated when presented by pictures. Bracelets however, were appreciated more when presented by rotating virtual product presentation.

An interesting pattern occurred, since we can conclude that the two groups of IBT appreciated their 'favorite' product more at the rotating virtual product presentation situation. Further, the two groups of IBT revealed higher purchase intention as well when their 'favorite' product was presented by rotating virtual product presentation.

Together, the results of this research make a contribution to understand how consumers react to rotating virtual product presentation and how this relates to purchase intention, especially for different types of consumers and different types of processing. All in all, these are positive effects of rotating virtual product presentation and should definitely not be underestimated in creating online stores en presenting products.

6. Limitations and further research

This research has some limitations. The first is the stimulus materials, which were created by the researcher. Product presentations made by professionals could be even more convincing to the participants and therefore give answers, comparable to a real web store. However, we did find interesting significant results. Our research was tested with two products, this is a limited amount. More products could give a more complete and representative result. Also our types of rotating virtual product presentation could have been more complete by adding rotating virtual product presentation that allows to zoom in and out and where the speed of the rotation can be controlled. Unfortunately, removal of the price tag in the web shops was not possible in the stimulus material. Although we explicitly mentioned that the web sites were fictional, this element may have been distracting. An upcoming trend is virtual reality and augmented reality, it would be interesting if this situation was also tested in future research, to see if this even has more positive effect on the dependent variables of this study. Moreover, future research could add different levels of descriptive textual information in the testing situations to see how this affects purchase intention. Whereas we tried to simulate the shopping process, the artificial and 'clean look' of the experimental treatment may affect responses. We relied on existing literature, although measurements of cognitive experience self theory is accepted, comparable studies using these measurements were scarce. Therefore we had little comparison with similar results by measuring with CEST. Participants were recruited via e-mail and social network sites, a convenient and quick way of sampling. However, this could mean that not all facets of the population were reached. It would be advisable to increase the number of participants with perhaps a different sampling method, to be more confident about generalizing the results. Although we put effort in making the questions as simple as possible, some respondents replied that they found some questions slightly vague and had to re-read questions.

Moreover, an extra variable showed that the bracelet and printer were statistically different in product complexity, further research could do pre-tests to be more confident. The participants of the study were Dutch, which means that the results are not automatically interpretable in other countries or cultures. And so, future research should be done to see if outcomes of the research would be the same in different cultures or countries. The results of this study are still interesting and useful for organisations to study the effect of rotating virtual product presentation on their organisation, and knowing for what products to invest in rotating virtual product presentation and when not.

7. Managerial implications

Rotating virtual product presentation are used more and more by online retailers. Rotating virtual product presentation facilitates consumers by presenting products in a more natural, real and realistic manner (Verhagen et al., 2014). Prior research showed the importance of rich product presentations and the results of this research confirm that rotating virtual product presentation can have a positive effect on consumers in specific situations.

Our study revealed that rotating virtual product presentation and SSTS experiential have a positive effect on purchase intention. This implies that experiential thinking style and rotating virtual product presentation are a great combination and reinforce each other, resulting in a higher purchase intention. Additionally, we found a marginally significant interaction between product, SSTS experiential on product evaluation, where bracelets were evaluated higher than the printer. This indicates that the affective or 'fun' aspect of the bracelet may evoke experiential processing, resulting in a higher product evaluation. Once again, marketers must be considerate interpreting this since it was marginally significant. Lastly, for processing styles we found that products and SSTS rational had a marginally statistical significant interaction effect on product evaluation. Marketers should be aware that presenting products is not only about a presentation, it goes deeper in the brain of the consumer where associations and decisions about the product are made. This means that it is advisable for marketers to consider presenting products by rotating product presentation. However, rotating virtual product presentation especially shows its added value in certain situations for certain types of consumers, which we will discuss.

This study also showed that the distinction between impulsive and less impulsive consumers is worthwhile considering regarding rotating virtual product presentation: their reactions to product presentations and products are quite different. All in all, we can partially conclude that the two groups of impulse buying tendency reported higher scores on the scales when their 'favorite' product was presented in rotating product presentation. Less impulsive consumers showed higher appreciation for the printer when presented by

rotating product presentation. Impulsive customers appreciated bracelets more, and appreciated them more when presented by rotating product presentation. This pattern is partially the same for purchase intention. Here, less impulsive people reported higher purchase intention for printers, and were more intended to buy printers when presented by picture (however, the mean difference between picture situation and rotating virtual product presentation is very low, namely 0.004). Impulsive people showed higher purchase intention for bracelets, and were more intended to buy bracelets when presented by rotating product presentation. We expected for purchase intention that individuals with lower levels of impulse buying tendency would also report higher purchase intention when their 'favorite' printer was presented by rotating product presentation, which was not the case. Despite this difference, our results suggest that different products flourish better when presented by rotating virtual product presentation or by picture. When looking at the marketing budget, not all products seem to 'need' rotating virtual product presentation to be successful. For instance, when printers are presented by picture to less impulsive people, higher purchase intention was reported. Not only will this save money, it will also stimulate purchase intention. Companies could do research on their customers to see if their web shop attracts more impulsive or less impulsive people. Impulsive people revealed higher levels of perceived authenticity, purchase intention and higher levels of product evaluation: these are interesting consumers characteristics. And if consumers are impulsive, marketers should consider how they can facilitate in encouraging impulse behavior of impulsive consumers, especially when they sell products that are known as impulsive products such as apparel (Park, Kim, 2008; Rhee, 2007). To stimulate purchase intention, these products should be presented by rotating product presentation.

8. Conclusions

The aim of this study was to investigate the influence of rotating virtual product presentation on purchase intention, product evaluation, perceived authenticity, product appreciation, and if the processing style of consumers and impulse buying tendency had an influence on this. By creating manipulations of product and presentations, we tested the effect of the above named variables and the research question: *What is the influence of rotating virtual product presentation on purchase intention, and to what extent do SSTS and impulse buying tendency play a role in this?*

Research question answered:

Rotating virtual product presentation on itself did not reveal a direct main effect on purchase intention. However, presentation and SSTS experiential have an effect on purchase intention. Also product, presentation and impulse buying tendency have a (marginal significant) effect on purchase intention and a significant effect on product appreciation.

Main findings of the study:

- We found a significant interaction between presentation and SSTS experiential on purchase intention, where purchase intention was slightly higher when presented by rotating virtual product presentation when compared to presentation by picture.

- A marginally significant interaction was found where individuals with lower levels of impulse buying tendency group reported slightly higher purchase intention when the printer was presented by picture. Additionally, purchase intention was higher for the bracelet when presented by picture. Contrary, individuals with higher levels of impulse buying tendency reported higher purchase intention when the printer was presented by picture. However,

purchase intention of the bracelet was higher when presented by rotating product presentation.

- Individuals with lower impulse buying tendency appreciated printers more when presented by rotating product presentation, the bracelet was appreciated more when presented by picture. On the contrary, we found contradicting results for people with higher impulse buying tendencies, here, printers are appreciated when presented by picture. Bracelets scored higher when presented by rotating product presentation.

All in all, we can conclude that the two groups of impulse buying tendency revealed higher scores on the scales for purchase intention and product appreciation when their 'favorite' product was presented in rotating product presentation. For instance, individuals with lower levels of impulse buying tendency showed higher appreciation for the printer, and appreciated printers more when presented by rotating product presentation. High(er) impulsive people appreciated bracelets more, and appreciated them more when presented by rotating product presentation.

As mentioned, this pattern is (partially) the same for purchase intention. Here, individuals with lower levels of impulse buying tendency revealed similar levels of purchase intention for the printer when presented by picture or by rotating virtual product presentation. Impulsive people revealed higher purchase intention for bracelets, and were more intended to buy bracelets when presented by rotating product presentation. We expected for purchase intention that individuals with lower levels of impulse buying tendency would reveal substantially higher purchase intention when their 'favorite' printer was presented by rotating virtual product presentation.

References

Algharabat, R., & Dennis, C. (2009). Modelling 3D product visualisation for online retail atmospherics. Unpublished manusript. Retrieved from http://v-scheiner.brunel.ac.uk/handle/2438/3766

Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of consumer research*, 644-656.

Beatty, S. E., & Ferrell, M. E. (1998). Impulse buying: modeling its precursors.*Journal of retailing*, *74*(2), 169-191.

Biocca, F., & Delaney, B. (1995). Immersive virtual reality technology. In Biocca, F (Ed.), Levy, M.R. (Ed.).*Communication in the age of virtual reality* (57-124).Hillsday, NJ: Lawrence Erlbaum Associates.

Björklund, F., & Bäckström, M. (2008). Individual differences in processing styles: Validity of the rational–experiential inventory. *Scandinavian journal of psychology*, *49*(5), 439-446. doi: 10.1111/j.1467-9450.2008.00652.x

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of personality and social psychology*, *39*(5), 752.

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty. *Journal of marketing*, *65*(2), 81-93.

Chitturi, R., Raghunathan, R., & Mahajan, V. (2008). Delight by design: The role of hedonic versus utilitarian benefits. *Journal of Marketing*, *72*(3), 48-63.

Choi, Y. K., & Taylor, C. R. (2014). How do 3-dimensional images promote products on the Internet?. *Journal of Business Research*, *67*(10), 2164-2170. doi:10.1016/j.jbusres.2014.04.026

Dahlén, M., Rasch, A., & Rosengren, S. (2003). Love At First Site?. *Journal of Advertising Research*, *43*(1), 25-33. doi: 10.1017/s0021849903030058

Daugherty, T., Li, H., & Biocca, F. (2008). Consumer learning and the effects of virtual experience relative to indirect and direct product experience.*Psychology & Marketing*, *25*(7), 568-586. doi: 10.1002/mar.20225

Dawson, S., & Kim, M. (2009). External and internal trigger cues of impulse buying online. *Direct Marketing: An International Journal*, *3*(1), 20-34. doi: 10.1108/17505930910945714

Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of marketing research*, *37*(1), 60-71.

Dittmar, H., Long, K., & Meek, R. (2004). Buying on the Internet: Gender differences in on-line and conventional buying motivations. *Sex roles*, *50*(5-6), 423-444.

Donthu, N., & Garcia, A. (1999). The internet shopper. *Journal of advertising research*, *39*, 52-58.

Epstein, S. (2003). Cognitive-experiential self-theory of personality. In Millon, T., Lerner, J.L. (Eds.),*Handbook of psychology* (pp.159-184) Hoboken, NJ:John Wiley & Sons, Inc.

Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American psychologist*, *49*(8), 709.

Epstein, S. (1991). Cognitive-experiential self-theory: An integrative theory of personality. *The relational self: Theoretical convergences in psychoanalysis and social psychology*, 111-137

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

Fabrigar, L. R., & Petty, R. E. (1999). The role of the affective and cognitive bases of attitudes in susceptibility to affectively and cognitively based persuasion. *Personality and social psychology bulletin*, *25*(3), 363-381.

Fiore, A. M., Jin, H., & Kim, J. (2005). For fun and profit: Hedonic value from image interactivity and responses toward an online store. *Psychology and Marketing*, *22*(8), 669 doi: 10.1002/mar.20079.

Fiore, A. M., & Jin, H. J. (2003). Influence of image interactivity on approach responses towards an online retailer. *Internet Research*, *13*(1), 38-48. doi:10.1108/10662240310458369

Floh, A., & Madlberger, M. (2013). The role of atmospheric cues in online impulse-buying behavior. *Electronic Commerce Research and Applications*,*12*(6), 425-439. http://dx.doi.org/10.1016/j.elerap.2013.06.001

Gill, T. (2008). Convergent products: what functionalities add more value to the base?. *Journal of Marketing*, *72*(2), 46-62. DOI: 10.1509/jmkg.72.2.46

Grigorovici, D. M., & Constantin, C. D. (2004). Experiencing interactive advertising beyond rich media: Impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments. *Journal of Interactive Advertising*, *5*(1), 22-36.

Hamilton, R. W., & Thompson, D. V. (2007). Is there a substitute for direct experience? Comparing consumers' preferences after direct and indirect product experiences. *Journal of Consumer Research*, *34*(4), 546-555.

Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: emerging concepts, methods and propositions. *The Journal of Marketing*, 92-101.

Hogarth, R. M. (2002). Deciding analytically or trusting your intuition? The advantages and disadvantages of analytic and intuitive thought. *The Advantages and Disadvantages of Analytic and Intuitive Thought (October 2002). UPF Economics and Business Working Paper*, (654).

Homburg, C., Koschate, N., & Hoyer, W. D. (2006). The role of cognition and affect in the formation of customer satisfaction: a dynamic perspective.*Journal of Marketing*, *70*(3), 21-31.

Jai, T. M. C., O'Boyle, M. W., & Fang, D. (2014). Neural correlates of sensory-enabling presentation: An fMRI study of image zooming and rotation video effects on online apparel shopping. *Journal of Consumer Behaviour*,*13*(5), 342-350. doi: 10.1002/cb.1476

Jayawardhena, C., & Tiu Wright, L. (2009). An empirical investigation into e-shopping excitement: antecedents and effects. *European Journal of Marketing*, *43*(9/10), 1171-1187. DOI 10.1108/03090560910976429

Jiang, Z., & Benbasat, I. (2007). Research note-investigating the influence of the functional mechanisms of online product presentations. *Information Systems Research*, *18*(4), 454-470.doi 10.1287/isre.1070.0124

Jiang, Z., Chan, J., Tan, B. C., & Chua, W. S. (2010). Effects of interactivity on website involvement and purchase intention. *Journal of the Association for Information Systems*, *11*(1), 1.

Jones, M. A., Reynolds, K. E., Weun, S., & Beatty, S. E. (2003). The product-specific nature of impulse buying tendency. *Journal of business research*,*56*(7), 505-511. doi:10.1016/S0148-2963(01)00250-8

Kahneman, D. (2003). A perspective on judgment and choice: mapping bounded rationality. *American psychologist*, *58*(9), 697. doi: 10.1037/0003-066X.58.9.697

Kahneman, D., & Frederick, S. (2002). Representativeness revisited: Attribute substitution in intuitive judgment. *Heuristics and biases: The psychology of intuitive judgment*, *49*.

Kim, E. Y. (2008). Online Purchase Intentions for Product Categories-The Functions of Internet Motivations and Online Buying Tendencies. *Journal of the Korean Society of Clothing and Textiles*, *32*(6), 890-901.

Kim, J., & Forsythe, S. (2008). Sensory enabling technology acceptance model (SE-TAM): A multiple-group structural model comparison. *Psychology & Marketing*, *25*(9), 901-922. doi: 10.1002/mar.20245

Klein, L. R. (2003). Creating virtual product experiences: The role of telepresence. *Journal of interactive Marketing*, *17*(1), 41-55. doi: 10.1002/dir.10046

Klein, K., & Melnyk, V. (2014). Speaking to the mind or the heart: effects of matching hedonic versus utilitarian arguments and products. *Marketing Letters*, 1-12. doi:10.1007/s11002-014-9320-3

Laroche, M., Bergeron, J., & Goutaland, C. (2001). A three-dimensional scale of intangibility. *Journal of Service Research*, *4*(1), 26-38.

Laroche, M., Yang, Z., McDougall, G. H., & Bergeron, J. (2005). Internet versus bricks-and-mortar retailers: An investigation into intangibility and its consequences. *Journal of retailing*, *81*(4), 251-267. doi:10.1016/j.jretai.2004.11.002

Lee, L., Amir, O., & Ariely, D. (2009). In search of homo economicus: Cognitive noise and the role of emotion in preference consistency. *Journal of Consumer Research*, *36*(2), 173-187. doi: 10.1086/597160

Lee, J., & Lee, J. N. (2009). Understanding the product information inference process in electronic word-of-mouth: An objectivity–subjectivity dichotomy perspective. *Information & Management*, *46*(5), 302-311. doi:10.1016/j.im.2009.05.004

Li, H., Daugherty, T., & Biocca, F. (2002). Impact of 3-D advertising on product knowledge, brand attitude, and purchase intention: The mediating role of presence. *Journal of Advertising*, *31*(3), 43-57.

Li, H., Daugherty, T., & Biocca, F. (2001). Characteristics of virtual experience in electronic commerce: A protocol analysis. *Journal of Interactive Marketing*,*15*(3), 13-30.

Li, T., & Meshkova, Z. (2013). Examining the impact of rich media on consumer willingness to pay in online stores. *Electronic Commerce Research and Applications*, *12*(6), 449-461.
doi: http://dx.doi.org/10.1016/j.elerap.2013.07.001

Lieberman, M. D., Gaunt, R., Gilbert, D. T., & Trope, Y. (2002). Reflexion and reflection: A social cognitive neuroscience approach to attributional inference. *Advances in experimental social psychology*, *34*, 199-249. doi: 10.1016/S0065-2601(02)80006-5

Lim, K. H., & Benbasat, I. (2000). The effect of multimedia on perceived equivocality and perceived usefulness of information systems. *MIS quarterly*, 449-471. doi: 10.2307/3250969

Liu, Y., Li, H., & Hu, F. (2013). Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. *Decision Support Systems*, *55*(3), 829-837.

Madhavaram, S. R., & Laverie, D. A. (2004). Exploring impulse purchasing on the internet. *Advances in Consumer Research*, *31*(1), 59-66.

Muruganantham, G., & Bhakat, R. S. (2013). A review of impulse buying behavior. *International Journal of Marketing Studies*, *5*(3), p149. http://dx.doi.org/10.5539/ijms.v5n3p149

Norris, P., & Epstein, S. (2011). An experiential thinking style: Its facets and relations with objective and subjective criterion measures. *Journal of personality*, *79*(5), 1043-1080. doi: 10.1111/j.1467-6494.2011.00718.x

Norman, G. (2009). Dual processing and diagnostic errors. *Advances in Health Sciences Education*, *14*(1), 37-49. doi: 10.1007/s10459-009-9179-x

Novak, T. P., Hoffman, D. L., & Duhachek, A. (2003). The influence of goal-directed and experiential activities on online flow experiences. *Journal of consumer psychology*, *13*(1), 3-16.

Novak, T. P., & Hoffman, D. L. (2009). The fit of thinking style and situation: New measures of situation-specific experiential and rational cognition.*Journal of Consumer Research*, *36*(1), 56-72. doi: 10,1086/596026

Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian goods. *Journal of marketing research*, *42*(1), 43-53.

Park, E. J., Kim, E. Y., Funches, V. M., & Foxx, W. (2012). Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *Journal of Business Research*, *65*(11), 1583-1589. doi:10.1016/j.jbusres.2011.02.043

Park, J., Lennon, S. J., & Stoel, L. (2005). On-line product presentation: Effects on mood, perceived risk, and purchase intention. *Psychology & Marketing*, *22*(9), 695-719. doi: 10.1002/mar.20080

Peck, J., & Childers, T. L. (2003). To have and to hold: The influence of haptic information on product judgments. *Journal of Marketing*, *67*(2), 35-48. doi: 10.1509/jmkg.67.2.35.18612

Petty, R. E., & Cacioppo, J. T. (1986). *The elaboration likelihood model of persuasion* (pp. 1-24). Springer New York.

Rhee, Y. J. (2007). A study on online apparel buying behavior. *Journal of the Korean Home Economics Association*, *45*(3), 33-42.

Rook, D. W. (1987). The buying impulse. *Journal of consumer research*, 189-199.

Rook, D. W., & Fisher, R. J. (1995). Normative influences on impulsive buying behavior. *Journal of consumer research*, 305-313.

Samson, A., & Voyer, B. G. (2012). Two minds, three ways: dual system and dual process models in consumer psychology. *AMS review*, *2*(2-4), 48-71. doi: 10.1007/s13162-012-0030-9

Schlosser, A. E. (2003). Experiencing products in the virtual world: the role of goal and imagery in influencing attitudes versus purchase intentions.*Journal of consumer research*, *30*(2), 184-198.

Sharma, P., Sivakumaran, B., & Marshall, R. (2010). Impulse buying and variety seeking: A trait-correlates perspective. *Journal of Business Research*,*63*(3), 276-283. doi:10.1016/j.jbusres.2009.03.013

Shiv, B., & Fedorikhin, A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of consumer Research*, *26*(3), 278-292.

Shulman, E. P., Smith, A. R., Silva, K., Icenogle, G., Duell, N., Chein, J., & Steinberg, L. (2015). The dual systems model: Review, reappraisal, and reaffirmation. *Developmental Cognitive Neuroscience*. http://dx.doi.org/10.1016/j.dcn.2015.12.010

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2004). Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality. *Risk analysis*, *24*(2), 311-322.

Smith, S. P., Johnston, R. B., & Howard, S. (2011). Putting yourself in the picture: An evaluation of virtual model technology as an online shopping tool. Information Systems Research, 22(3), 640-659.

Stanovich, K. E., & West, R. F. (2008). On the relative independence of thinking biases and cognitive ability. *Journal of personality and social psychology*, *94*(4), 672. doi: 10.1037/0022-3514.94.4.672

Stilley, K. M., Inman, J. J., & Wakefield, K. L. (2010a). Planning to make unplanned purchases? The role of in-store slack in budget deviation. *Journal of Consumer Research*, *37*(2), 264-278.

Stilley, K. M., Inman, J. J., & Wakefield, K. L. (2010b). Spending on the fly: Mental budgets, promotions, and spending behavior. *Journal of Marketing*,*74*(3), 34-47.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and social psychology review*, *8*(3), 220-247.

Verhagen, T., Vonkeman, C., Feldberg, F., & Verhagen, P. (2014). Present it like it is here: Creating local presence to improve online product experiences.*Computers in human behavior*, *39*, 270-280. doi: http://dx.doi.org/10.1016/j.chb.2014.07.036

Verplanken, B., & Herabadi, A. (2001). Individual differences in impulse buying tendency: Feeling and no thinking. *European Journal of personality*, *15*(S1), S71-S83. doi: 10.1002/per.423

Vohs, K. D., & Faber, R. J. (2007). Spent resources: Self-regulatory resource availability affects impulse buying. *Journal of consumer research*, *33*(4), 537-547.

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

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. doi: 10.1037//0022-3514.81.6.989

Won Jeong, S., Fiore, A. M., Niehm, L. S., & Lorenz, F. O. (2009). The role of experiential value in online shopping: The impacts of product presentation on consumer responses towards an apparel web site. *Internet Research*,*19*(1), 105-124. doi: 10.1108/10662240910927858

Yoo, J., & Kim, M. (2014). The effects of online product presentation on consumer responses: A mental imagery perspective. *Journal of Business Research*, *67*(11), 2464-2472. http://dx.doi.org/10.1016/j.jbusres.2014.03.006

Youn, S., & Faber, R. J. (2000). Impulse buying: its relation to personality traits and cues. *Advances in consumer research*, *27*, 179-185.

Appendix A

English version online questionnaire

Thanks for your cooperation! This study is about online shopping and it will take about 6 minutes. Results of this study will be used on behalf of a master thesis. Answers will be processed anonymously. If you have any questions please contact
a.h.prenger@student.utwente.nl
Click on >> to get started!

- Before we begin, we would like to ask you some introducing questions.
What is your age?
...

-What is your gender?
-Male
-Female

-How experienced are you with online shopping?
Very unexperienced 0 0 0 0 0 0 0 Very experienced

By clicking on this link, you will enter a fictional web shop. Visit the web shop like you would normally do, by looking and clicking. Ordering product isn't necessary. Please return after completion. Please keep this web shop in mind, while answering the questions.
Only click on >> if you've seen the web shop

-How the product was presented, gives me an impression on:
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

What the product looks like
Benefits I might experience
The overall quality of the product
If the product satisfies my needs
How the product really is to use
Ways in which the product will not satisfy my needs

- Please indicate to what extent you agree with the following statements:"This product presentation..."
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

...gives a product experience similar to one I would have when shopping in a store
...gives me the impression as if i'm seeing it in a 'real' store
...let's me see the product as if it was a real product
...gives me a clear impression of what the product looks like in real

-Please indicate to what extent you agree with the following statements:
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

I am excited about this product
I felt enthusiasm toward the product
I would opt for this product
I could like this product
This product would fit my taste
This product is meaningful to me

-Please indicate to what extent you agree with the following statements:
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

I am positive towards buying this product
I have the intention of buying this product
I think it is a good idea to buy this product
I would recommend this product to others

-For the last part of this study, we would like you to describe the product that you saw:

Functional 0 0 0 0 0 0 0 Not functional
Fun 0 0 0 0 0 0 0 Not fun
Effective 0 0 0 0 0 0 0 Not effective
Dull 0 0 0 0 0 0 0 Exciting
Practical 0 0 0 0 0 0 0 Impractical
Enjoyable 0 0 0 0 0 0 0 unenjoyable

-Then, please indicate to what extent you agree with the following statements:
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

I need more information about this product to have a full impression of what it is
I got a full impression of the product
Right away I got an impression of the product in my head
This product is not easy to imagine
This product is hard to think about

-Indicate as this question how you evaluated the product:
(Totally disagree 0 0 0 0 0 0 0 Totally agree)

I tackled things systematically
I figured things out logically
I was aware of my thinking process
I arrived at my answers by carefully assessing the information in front of me
I used clear rules
I went by what felt good to me
I relied on my sense of intuition
Ideas just popped into my head
I used my emotions as a guidance
I relied on my first impressions

-You've reached the last question, we would like to know how you would normally shop (online and in a 'real' store). Pleas indicate to what extent you agree on the following statements:

I usually think carefully before I buy something
Most of my purchases are planned in advance
I only buy things that I really need
I like to compare different brands before I buy one
Before I buy something, I consider if I really need it
It is a struggle to leave nice things I see in the shop
I can become very excited if I see something I would like to buy
I am a reckless in buying things
If I see something new, I want to buy it
Sometimes I just buy something for the sake of buying, not because I need it.

Appendix B

Dutch version online questionnaire

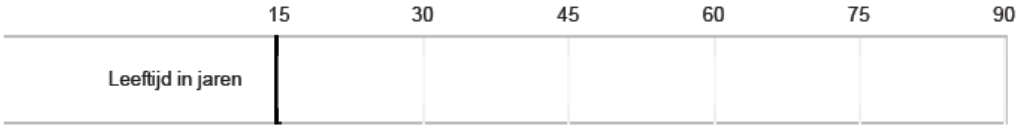
Bedankt voor de medewerking! Het onderzoek gaat over online winkelen, het duurt ongeveer 6 minuten.

De resultaten van dit onderzoek worden gebruikt voor een master scriptie. De antwoorden worden anoniem verwerkt. Voor vragen kunt u contact opnemen via a.h.prenger@student.utwente.nl.

Klik op >> om van start te gaan!

Voordat we beginnen, willen we u graag enkele introducerende vragen stellen.

Wat is uw leeftijd?



Wat is uw geslacht?

- ○ Man
- ○ Vrouw

Hoe ervaren bent u met online winkelen?

zeer onervaren ○ ○ ○ ○ ○ ○ ○ zeer ervaren

Via deze link (opent in nieuw venster) komt u op een fictieve webshop. Kijk en klik rond op de pagina zoals u dat normaal ook zou doen, een kort bezoek is voldoende. **Kom daarna terug naar deze vragenlijst.**

Houd deze webshop in uw achterhoofd, terwijl u de vragen beantwoordt.

Klik pas op >> als u de webshop heeft bekeken.

De manier waarop het product gepresenteerd is, geeft mij een impressie over:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Hoe het product eruit ziet	○	○	○	○	○	○	○
Voordelen die ik ervan zou hebben	○	○	○	○	○	○	○
De algehele kwaliteit van het product	○	○	○	○	○	○	○
Of het product aan mijn eisen voldoet	○	○	○	○	○	○	○
Hoe het product echt is om te gebruiken	○	○	○	○	○	○	○
Manier waarop het product niet aan mijn behoeftes voldoet	○	○	○	○	○	○	○

Geef aan in hoeverre u het eens bent met de volgende standpunten: "Deze product presentatie..."

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
... geeft mij een product ervaring die gelijk is aan een product ervaring in een 'echte' winkel	○	○	○	○	○	○	○
...geeft mij de indruk alsof ik het zelf in een 'echte' winkel zie	○	○	○	○	○	○	○
... laat mij het product zien alsof het een echt product is	○	○	○	○	○	○	○
... geeft mij een duidelijk beeld hoe het product er in het echt uitziet	○	○	○	○	○	○	○

Geef aan in hoeverre u het eens bent met de volgende standpunten:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Dit product is gemakkelijk om waar te nemen	○	○	○	○	○	○	○
Het voelt alsof ik het product fysiek kan aanraken	○	○	○	○	○	○	○
Het product roept verschillende beelden bij mij op	○	○	○	○	○	○	○
Het lijkt alsof het item fysiek zeer tastbaar is	○	○	○	○	○	○	○

Geef aan in hoeverre u het eens bent met de volgende standpunten:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Ik bent gemotiveerd over dit product	○	○	○	○	○	○	○
Ik ben enthousiast over dit product	○	○	○	○	○	○	○
Ik zou dit product kiezen	○	○	○	○	○	○	○
Ik zou dit product leuk kunnen vinden	○	○	○	○	○	○	○
Dit product zou naar mijn smaak kunnen zijn	○	○	○	○	○	○	○
Dit product is betekenisvol voor mij	○	○	○	○	○	○	○

Geef aan in hoeverre u het eens bent met de volgende standpunten:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Ik sta er positief tegenover om dit product te kopen	○	○	○	○	○	○	○
Ik heb de intentie om dit product te kopen	○	○	○	○	○	○	○
Ik denk dat het een goed idee is om dit product te kopen	○	○	○	○	○	○	○
Ik zou dit product aanbevelen bij anderen	○	○	○	○	○	○	○

Voor het **laatste gedeelte** van het onderzoek willen we u vragen het product te omschrijven:

Handig	○	○	○	○	○	○	○	Niet handig
Niet leuk	○	○	○	○	○	○	○	Leuk
Nodig	○	○	○	○	○	○	○	Niet nodig
Niet boeiend	○	○	○	○	○	○	○	Boeiend
Niet functioneel	○	○	○	○	○	○	○	Functioneel
Niet praktisch	○	○	○	○	○	○	○	Praktisch
Niets spannend	○	○	○	○	○	○	○	Spannend
Onplezierig	○	○	○	○	○	○	○	Plezierig

Geef vervolgens aan in hoeverre u het eens bent met deze standpunten:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Ik heb meer informatie over dit product nodig om een goed idee te krijgen wat het is	○	○	○	○	○	○	○
Ik heb een volledige indruk van dit product	○	○	○	○	○	○	○
Ik krijg gelijk een voorstelling in mijn hoofd van dit product	○	○	○	○	○	○	○
Dit product is niet gemakkelijk om in te beelden	○	○	○	○	○	○	○
Dit product is moeilijk om over na te denken	○	○	○	○	○	○	○

Geef bij deze **op een na laatste** vraag aan hoe u het product heeft beoordeeld:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Ik heb het systematisch aangepakt	○	○	○	○	○	○	○
Ik heb dingen logisch uitgedacht	○	○	○	○	○	○	○
Ik was mij bewust van mijn denkproces	○	○	○	○	○	○	○
Ik ben tot mijn besluit gekomen door zorgvuldig de beschikbare informatie te beoordelen	○	○	○	○	○	○	○
Ik heb duidelijke regels gebruikt	○	○	○	○	○	○	○
Ik ging voor wat goed aanvoelde	○	○	○	○	○	○	○
Ik vertrouwde op mijn intuïtie	○	○	○	○	○	○	○
Ideeën kwamen bovendrijven	○	○	○	○	○	○	○
Ik heb mijn emoties gebruikt als leidraad	○	○	○	○	○	○	○
Ik vertrouwde op mijn eerste indruk	○	○	○	○	○	○	○

U bent aangekomen bij de **allerlaatste vraag**, we willen graag weten hoe u normaal gezien winkelt (online en in een 'echte' winkel). Geef aan in hoeverre u het eens bent met deze standpunten:

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet oneens/niet eens	Een beetje mee eens	Mee eens	Helemaal mee eens
Ik denk goed na voordat ik iets koop	○	○	○	○	○	○	○
De meeste aankopen plan ik van tevoren	○	○	○	○	○	○	○
Ik koop alleen dingen die ik nodig heb	○	○	○	○	○	○	○
Ik vind het prettig om verschillende merken met elkaar te vergelijken, voordat ik iets koop	○	○	○	○	○	○	○
Voordat ik iets koop, denk ik goed na of ik het echt nodig heb.	○	○	○	○	○	○	○
Het is lastig om leuke dingen in een winkel te laten liggen	○	○	○	○	○	○	○
Ik kan enthousiast worden als ik iets zie dat ik wil kopen	○	○	○	○	○	○	○
Ik ben roekeloos als ik dingen koop	○	○	○	○	○	○	○
Als ik iets nieuws zie, wil ik het kopen	○	○	○	○	○	○	○
Soms koop ik iets omdat ik het leuk vind om te kopen, niet omdat ik het nodig heb	○	○	○	○	○	○	○

Bedankt! Druk op >> om de antwoorden te versturen

Appendix C

Respondents characteristics

Demographics		N	%
Age:	18 thru 25 years	65	28%
	26 thru 35 years	62	26%
	36 thru 45 years	32	14%
	46 thru 55 years	42	18%
	56 thru 65 years	31	13%
	66 thru 75 years	3	1%
	76 thru 85 years	1	<1%
Total:		236	100%
Education:			
	Primary school	1	<1%
	Secondary school	28	12%
	Secondary vocational education	69	29%
	Higher professional education	101	43%
	University education	37	16%
Total:		236	100%

Appendix D

Test conditions

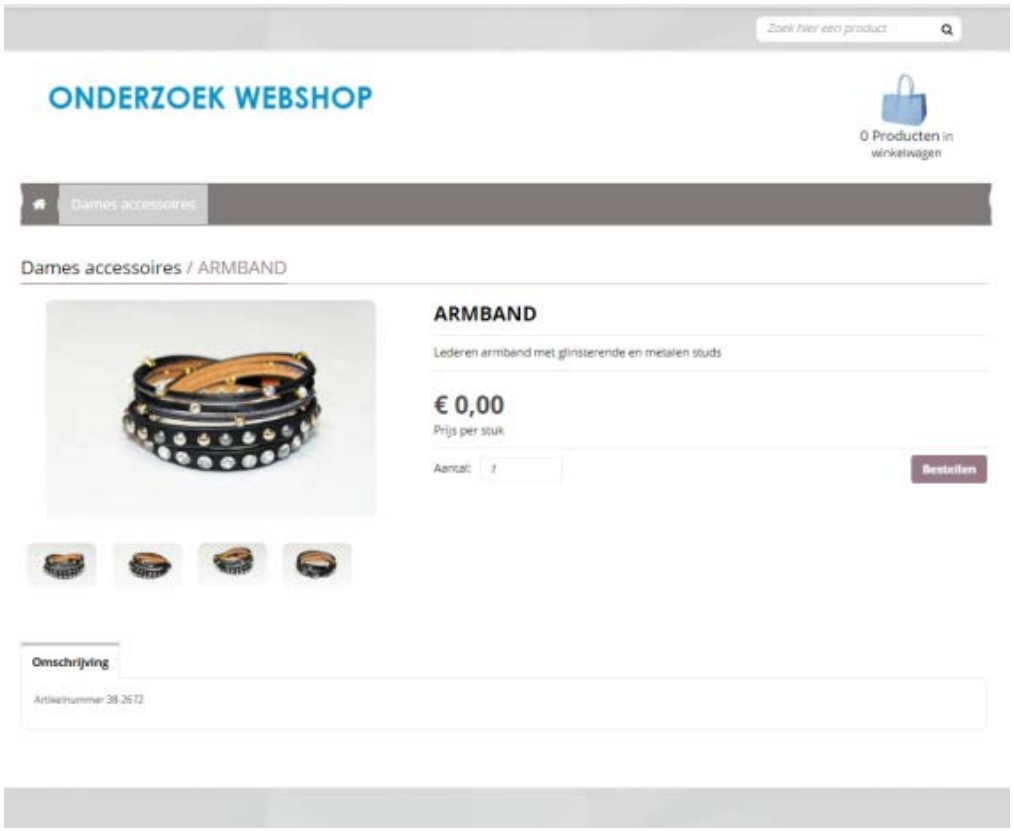
Presentation	Picture	Picture	Rotating	Rotating
Product	Printer	Bracelet	Printer	Bracelet
Patricipants (N)	56	64	58	58

Appendix E

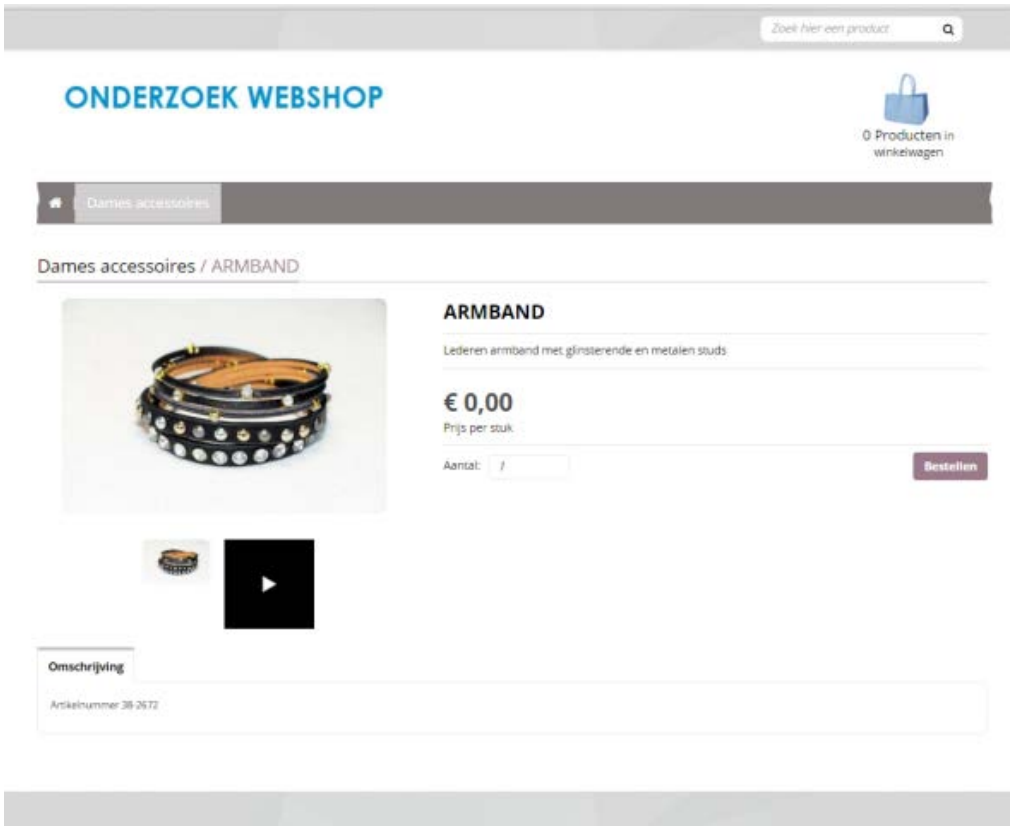
Comparison of the Experiential and Rational Systems in CEST (Epstein, 1991)

Experiential system	Rational system
More holistic.	More analytic.
More emotional—Pleasure- and pain-oriented (what feels good).	More logical—reason-oriented (what is sensible).
More associationistic.	More cause-and-effect analysis.
More outcome-oriented.	More process-oriented.
Behavior mediated by "vibes" from past experiences.	Behavior mediated by conscious appraisal of events.
Encodes reality in concrete images and metaphors.	Encodes reality in abstract symbols (words and numbers).
Rapid processing—oriented toward immediate action.	Slower processing—oriented toward delayed action.
Relatively slow to change—changes with repetitive experience, direct or vicarious.	Changes relatively rapidly—can change with speed of thought.
Crudely differentiated; broad generalization gradient; categorical thinking.	More highly differentiated; dimensional thinking.
Crudely integrated—dissociative, organized into emotional complexes (cognitive–affective modules).	More highly integrated.
Experienced passively and proconsciously: We are seized by our emotions.	Experienced actively and consciously: As if we are in control of our thoughts.
Self-evidently valid: "Experiencing is believing."	Requires justification via logic and evidence.

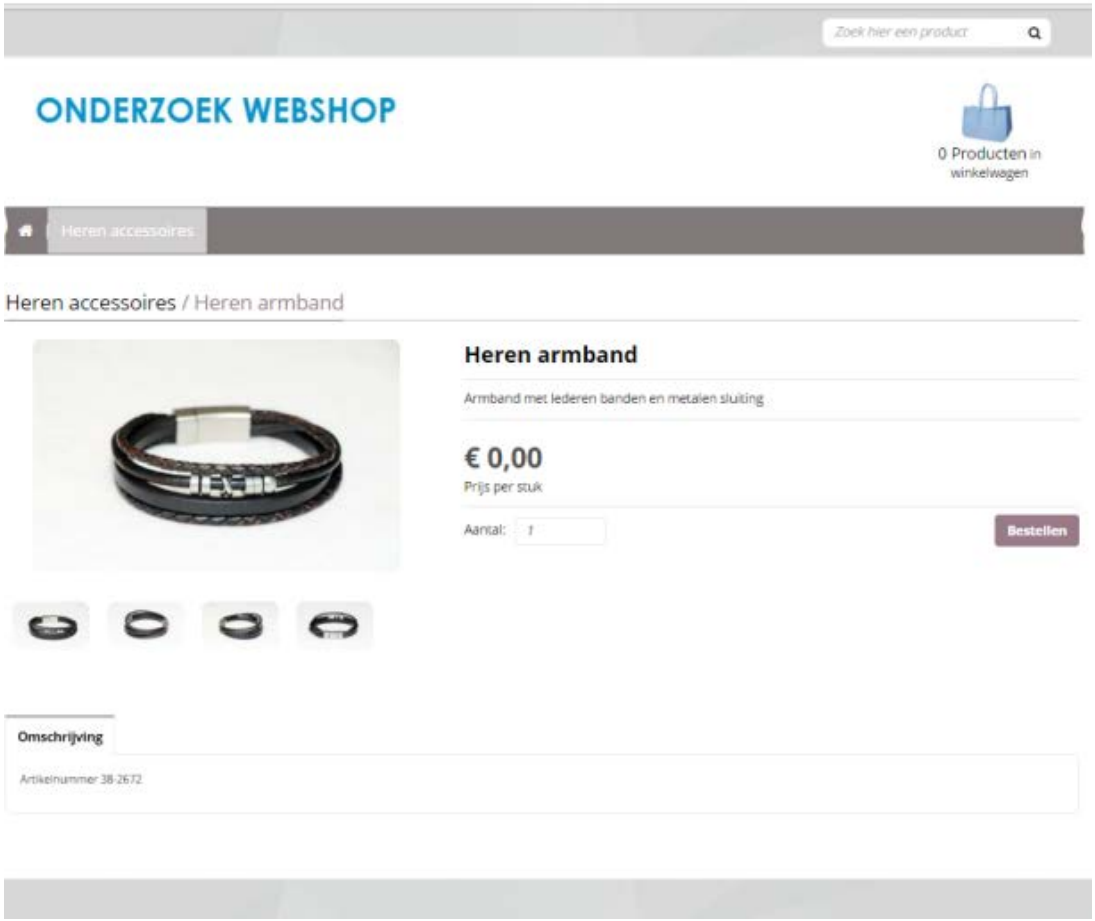
Appendix F



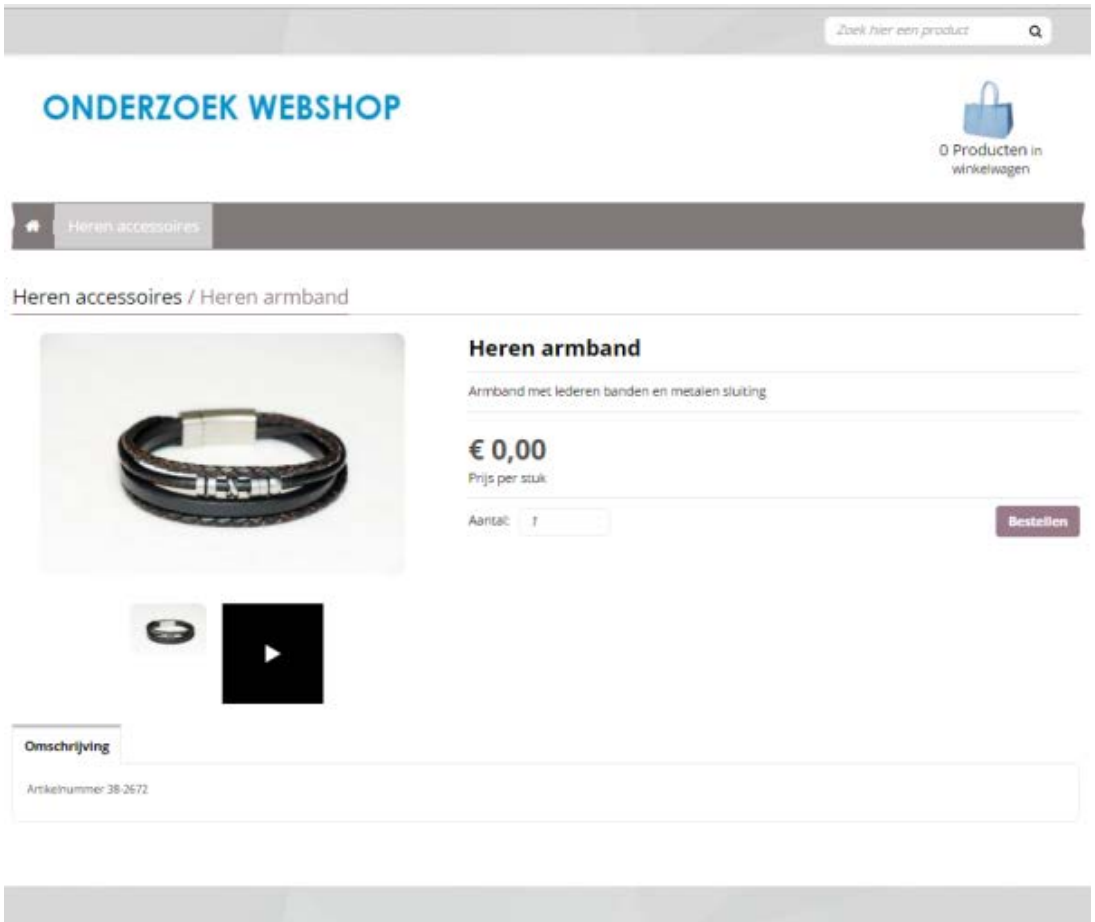
Female bracelet picture



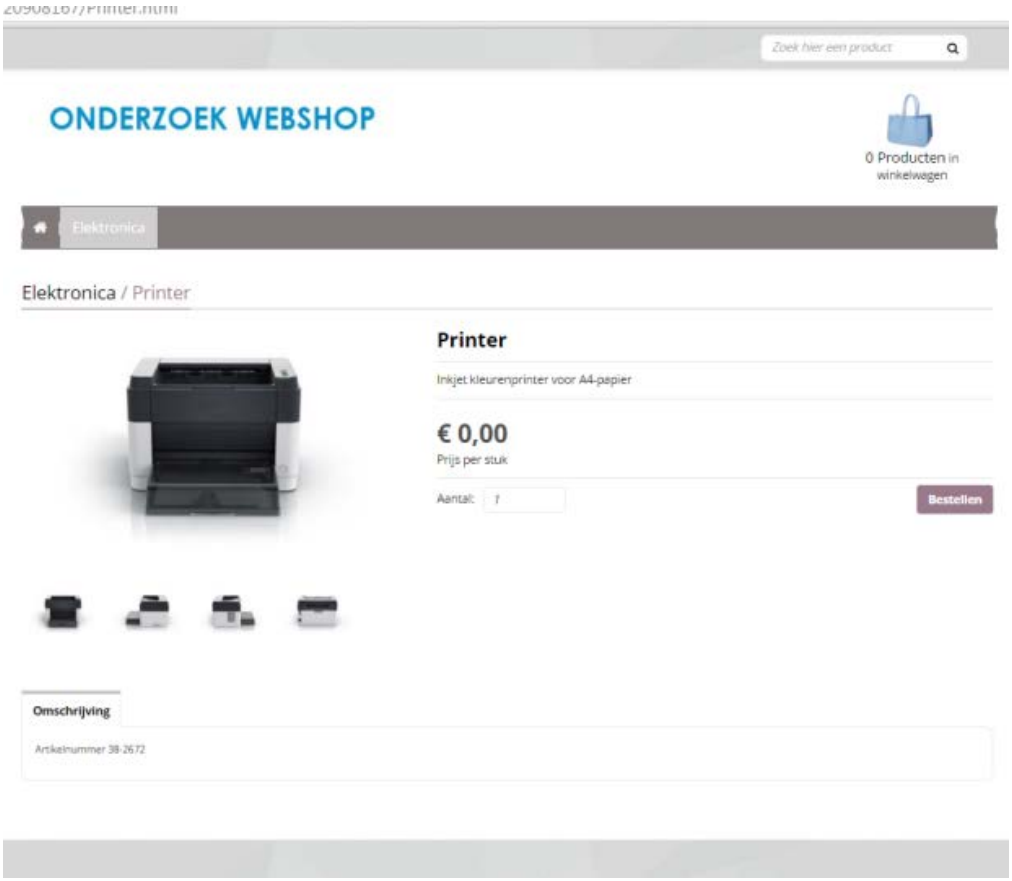
Female bracelet rotating product presentation



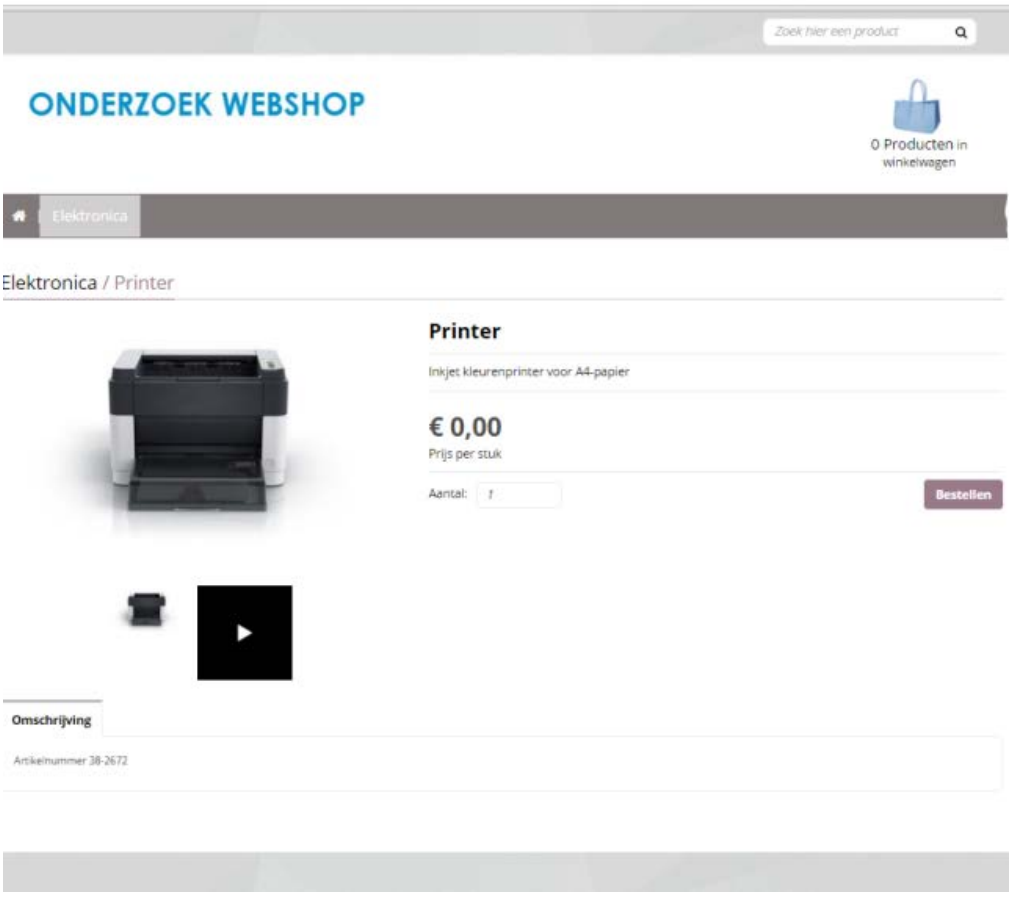
Male bracelet picture



Male bracelet rotating product presentation



Printer picture



Printer rotating product presentation

Appendix G

A. Low IBT **B. High IBT**

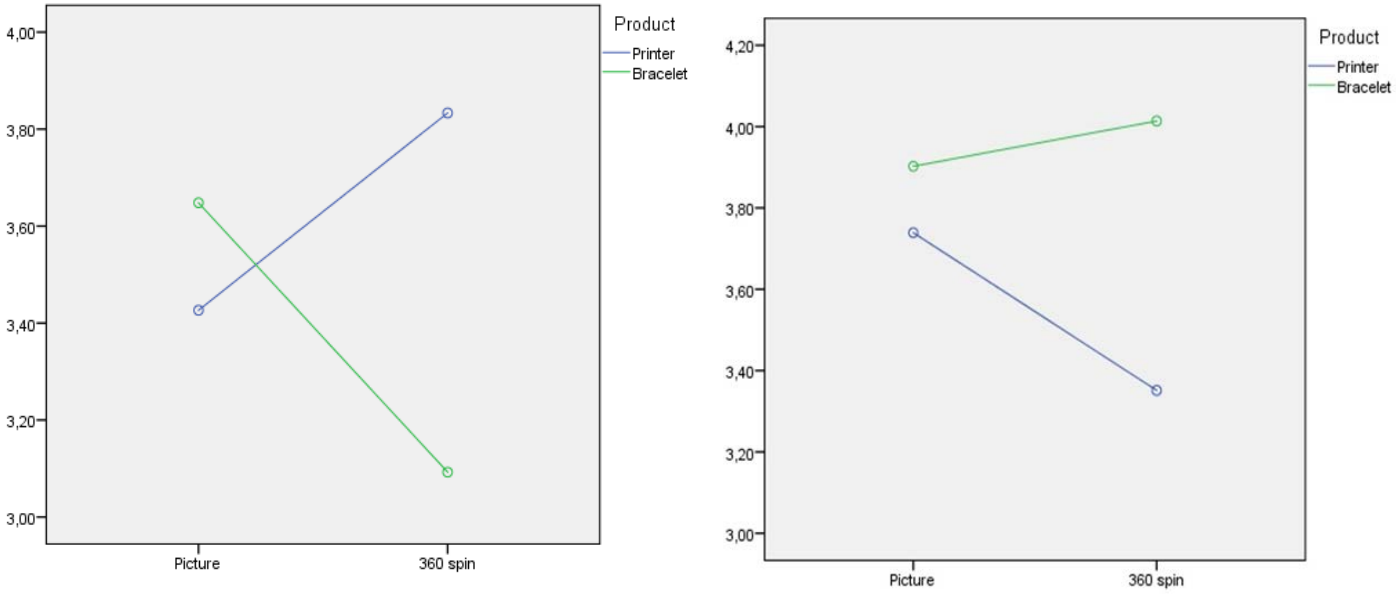


Figure 7. Interaction effect of product, presentation and (A) low impulse buying tendency and (B) high impulse buying tendency, on product appreciation

Online shopping is getting more and more common, a convincing product presentation is therefore crucial. This is where rotating virtual product presentation shows its importance, which is related to a better product understanding and purchase intention (Jiang & Benbasat, 2007; Park, Lennon & Stoel, 2005; Won Jeong, Fiore, Niehm & Lorenz, 2009). This research sheds a new light on virtual product presentation in relationship to online purchase intention. We studied the effect of rotating virtual product presentation on purchase intention, product evaluation, perceived authenticity, product appreciation, and if the situation specific thinking style (SSTS) and impulse buying tendency influence this. We conducted an online survey where respondents were randomly assigned to one of the six conditions, different in product and presentation. Results show that rotating virtual product presentation and SSTS experiential interact, resulting in a higher purchase intention. The two groups of impulse buying tendency reported higher product appreciation and purchase intention when their 'favorite' product was presented in rotating product presentation. Rotating virtual product presentation should be considered by marketers when launching a web store, since it has positive effects on purchase intention for specific groups of consumers.

Keywords: Rotating virtual product presentation, 3D product presentations, product experience, dual processing systems, judgment and decision making, impulse buying tendency, internet shopping, consumer behavior.

UNIVERSITY OF TWENTE.