Bachelor Thesis

“Do pretty sites sell better?

The effects of aesthetics on consumer buying behaviour: an experiment on consumer electronics webshops”

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Management Summary

Do pretty sites sell better? This study is the report of an experiment of 537 cases testing the effects of various aesthetic components of webshops on the buying intentions of online visitors.

The aim of this research paper is to identify and measure the importance of aesthetics of webshops as an influencer of buying intentions of visitors. Aesthetics is defined in both classical and expressive components, whereas classical aesthetics consist of aspects like symmetry, clearness and cleanness of the design, and expressive aesthetics consist of inspiring, fascinating original aspects. Webshop visitors are divided into two groups: visitors with a pre-existing purchase goal, called utilitarian visitors, and visitors without a purchase goal, called hedonic visitors.

It is hypothesised that while both types of aesthetics have a positive influence on the buying intentions of all types of visitors, classical aesthetics have a stronger positive effect on the buying intentions of utilitarian shoppers, and expressive aesthetics have a stronger positive effect on the buying intentions of hedonic shoppers.

Using a randomised experiment which resulted in a dataset of over 500 cases, these hypotheses were tested using statistical analyses. These analyses lead to the conclusion that indeed a strong presence of either form of aesthetics has a positive influence on the buying intentions of both types of shoppers. Furthermore, evidence showed that the positive influence of classic aesthetics is stronger for utilitarian shoppers than for hedonic shoppers. However, no significant variation was found between the positive effects of expressive aesthetics on buying intentions of hedonic and utilitarian visitors.

Lastly it can be concluded that the positive relationship between classic aesthetics and buying intentions is more significant for both types of shoppers than the positive relation between expressive aesthetics and buying intentions.

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1. Introduction

1.1 Research background

Spending on online marketing is becoming an ever increasing portion of the marketing budget of companies (EMarketer, 2011). Moreover, the Internet is not just an important retail channel (Ramus and Nielsen, 2005), but it has also become the main source of customer information. The perceived quality of websites and its influence on customer behaviour has been widely researched (Childers et al., 2001; Tamimi et al., 2003; Fogg et al., 2003; Cheung et al., 2003; Constantinides, 2004; Lavie and Tractinsky, 2004; Bottemley and Doyle, 2006; Lorenzo et al., 2007; Schaik and Ling, 2009; Lorenzo-Romero et al., 2013). Studies agree on a range of different aspects which influence the perceived quality, also called the web experience. The web experience consists of three major building blocks: functionality factors (usability and interactivity), psychological factors (integrity and credibility) and content factors (creative and marketing mix-related elements of the website). In this study the focus will be on the content factors of a webshop, and more specifically on the aesthetics of the content factor.

The quality of websites is often measured by its perceived aesthetics. One school of thought focusses on a “halo/horn effect” of aesthetics after short term exposure (Constantinides and Geurts 2005; Lindgaard et al., 2006; Tractinsky et al., 2006; Lorenzo et al., 2007, or the effect of the first impression of a website on visitors’ perception of the webshop. Another school of thought is focussing more on the correlation between perceived aesthetics and buying behaviour of visitors with different motivations (e.g. Lorenzo et al., 2007; Lorenzo et al., 2009; Wang et al, 2010; Wang et al, 2011; Lorenzo-Romero, Constantinides and Alarcón-del Amo, 2013).

This study will expand on the latter school of thought. The research in this particular domain is diffused and fragmented (Tractinsky and Lowengart, 2007). There have only been a few quantitative studies have been done on this specific subject, Wang et al. (2010; 2011) and Lorenzo-Romero et al. (2013) have attempted to solve this fragmentation by designing and conducting quantitative experiments. The tested models and hypotheses however, are not uniform and sometimes lack a theoretical

foundation, creating the necessity for a study which connects elements and results of these experiments.

This research will attempt to recreate these experiments while providing the necessary theoretical background to bridge the gap between these studies and find results which can be placed in the contexts of these studies. Moreover this study will provide additional evidence and knowledge about a potential influence of aesthetics of webshops on consumers' buying behaviour.

The main objective of this study is summarised as follows: *to identify and measure the importance of aesthetics of webshops as an influencer of buying intentions of visitors.*

1.2 Research problem and questions

The objective stated in the introduction translates to the following research problem: "*What is the value of aesthetics as an influencer of the online visitors' decision making process".* In order to analyse this problem and fulfil the main objective a literature study will be conducted in order to research the main actors in this research problem, and to identify relationships between these actors. The following research questions guide this literature review:

1. How can aesthetics be defined, and how does this translate to the design of webshops?
2. What characterises different types of online visitors?
3. In what ways do webshop aesthetics influence visitors?

The answers to these questions will help in the construction of a model mapping the relationship between aesthetics, online visitors and buying behaviour, which will be tested using a randomised experiment.

1.3 Justification for the research

For a growing number of products, the competitive landscape has evolved from a predominantly physical marketplace to one encompassing the physical marketplace and the electronic marketplace— an Internet-enabled market environment. These technological advances have also significantly impacted the marketing of non-information products as a consequence of the digitisation of their information attributes (Varadarajan & Yadav, 2009).

The rapid diffusion of powerful broadband Internet connections, ad-skipping digital video recorders, and smartphones has forced marketers to rethink a number of their traditional practices (Kiley 2005). These changes have eroded the effectiveness of mass media (Bianco 2004; Pendleton 2004). In the sixties Procter & Gamble could reach 80% of US women with one commercial aired simultaneously on just three TV networks. Today the same ad would have to run on 100 channels to achieve this marketing feat (Keller, 2009). A large contributor to this decline is the fragmentation of audiences, and the rise of the Internet. The world has grown from hundreds of TV and Radio stations, to an uncountable number of websites. In this new media environment, the consumer is increasingly in control. Consumers not only have more choices of media to use, they also have a choice about whether, and more importantly, how they want to receive commercial content (Keller, 2009). Hence marketers have to adjust their efforts towards niche audiences, making a clear understanding of one's target group highly important. This study focuses on the understanding of different online consumers, and the way marketers can use this information to optimise their presence on the web.

More elaborately explained in Chapter 2, previous research on the influence of web aesthetics on consumer behaviour has focussed mainly on whether a correlation between web aesthetics and consumer behaviour exists, and which variables play a role in this correlation. While a growing number of studies report aesthetic as an important factor in online marketing (Constantinides & Geurts, 2005), only few studies have actually performed experiments to test these claims (Lorenzo et al., 2007; Wang et al., 2010; Wang et al., 2011; Lorenzo-Romero et al., 2013).

This experiment will add insight into the moderating effects of both classic and expressive aesthetics, and the moderating effect of the visitors' motives. Moreover additional theoretical foundation will be provided for the constructs and models which were tested by Wang et al. (2010; 2011) and the constructs and models of Lorenzo-Romero et al. (2013). The result of this paper will be an additional understanding of the outcomes of these studies, and how these studies combined with this study provide a solid base for future studies and applications.

2. Literature review

One of the specific problems addressed by recent marketing studies is in the area of e-commerce, e-marketing and Internet marketing, which all refer to the same thing: Internet-enabled marketing (Varadarajan & Yadav, 2009). For the purpose of this paper Internet-enabled marketing will be defined, building on the American Marketing Association's definition of interactive marketing (Marketing News 2007): "Interactive marketing refers to the use of an information infrastructure network and devices connected to the network for mediating interactions between an organisation and its customers in the context of activities and processes employed by the organisation for creating, communicating, and delivering products that offer value to customers in an exchange".

In today's business climate the most visible part of marketing is considered to be communication, representing communication setups in which digital media are considered of great importance (Pickton and Broderick, 2005; Eid & El-Gohary, 2011). Moreover, e-marketing environments are evolving into becoming more complex and more active, and this could have a significant impact on the success of both products and services (Alio et al., 2009). In the beginning of the new millennium researchers commented on the lack of strategic intent behind the use of the Internet as a communications channel (Porter, 2001; Rayport & Jaworski, 2002). Most business focused merely on revenue growth (Hanson, 2000), instead of focussing on return on investments, associated with risk analysis and long term competitive advantages.

However more recent studies (e.g. Barwise & Farley 2005; Brodie, Winklhofer, Coviello, & Johnston 2007; Sultan & Rohm 2004; Varadarajan and Yadav, 2009) show that the focus is shifting towards using the web for market intelligence purposes: positioning the firm in terms of corporate image, cost advantages and gaining long term competitive advantages.

2.1 How can aesthetics be defined, and how does this translate to the design of webshops?

The term "aesthetics" has evolved through the years; it has been studied from different viewpoints, and has different meanings for different schools of thought. In

early philosophical views towards aesthetics the focus was primarily on the purpose of the object (Fenner, 1996). For Socrates, for example, the aesthetic attitude was a derivative of the practical, useful value of an object (Borev, 1981). A modern day translation of this attitude is found in the functionalist theory of aesthetics, this theory maintained that “if a thing is made to function well, if its construction is well suited to the job it has to do, then that thing will be beautiful” (Osborne, 1968, p.24).

More modern philosophers such as Kant claimed that beauty lies in intrinsic properties of objects, instead of instrumental properties of objects. Gautier translated this concept to “nothing is truly beautiful except that which can serve for nothing; whatever is useful is ugly” (Osborne, 1968, p.200). A subjective approach, represented by Hume and Kant (Lavie and Tractinsky, 2004), argues that the analysis of aesthetics should view beauty within the subject and not in the object.

The viewpoints of Socrates and Kant seem to be rather contradicting; nevertheless aesthetics will always be a subjective topic. However, following the results of Schenkmann and Jonsson (2000), both viewpoints can be used in the operationalization of aesthetics. Like other studies on the effect of aesthetics on consumer behaviour (Lavie and Tractinsky, 2004, Wang et al., 2010; Lorenzo-Romero et al., 2013), aesthetics are defined in two dimensions: classic and expressive. The first dimension: classic aesthetics, describe the order, clearness and symmetry of a website, referring to early philosophical definitions of aesthetics. The second dimension, expressive aesthetic, refers to the hedonic quality of a website in terms of impressiveness, creativity and fascination, as defined by more modern explanations of aesthetics.

As these dimensions are based on Socrates and Kants’ very opposing viewpoints, it is to be expected that webshops scoring high on expressive values will score low on classic values, and webshops scoring high on classic values will score low on expressive values.

2.2 What types of online visitors can be defined?

Wang et al (2011) make a clear distinction between website visitors with a purchasing goal, and website visitors without such a goal. However, Wang et al. (2011) did not provide a literary basis for this distinction. In this research paper a similar division will be used to classify consumers, moreover existing literature will be used to rationalise this decision. Kim and Easting (2011) argue for a bi-dimensional approach to visitors relying on gratification studies. According to Swanson (1992) gratification can be categorised in two dimensions: process and content gratification. Process gratification refers to the enjoyment and satisfaction from engaging in communication, in other words, motivations such as entertainment, relaxation, escape or just passing time are related to process gratifications (Parker and Plank, 2000). Content gratification refers to learning information and the enjoyment fulfilling learning objectives; hence we can link this type of gratification to cognitive and search motives (Charney and Greenberg, 2002).

Other studies related to consumer behaviour have identified two types of behaviour as well. Utilitarian motives are related to problem solving, goal oriented, task related and rational motives (Batra and Ahtola, 1991; Wolfinbarger and Gilly, 2001). Contrasting hedonic motives are often driven by such things as fun, amusement, enjoyment, arousal, novelty and surprise (Hirschman, 1980; Babin et al. 1994; Hausman, 2000). Hedonic visitors fulfil their needs not simply through the purchase, but in the visiting experience itself (Arnold and Reynolds, 2003). Looking at these two types of visitors, it is a logical conclusion that shoppers with a purchase task will be more likely to make a purchase, than shoppers without such a task. This translates to the first hypothesis:

H1: Utilitarian visitors have stronger buying intentions than hedonic visitors.

2.3 In what ways do webshop aesthetics influence visitors?

Childers et al. (2001), Ganesh et al. (2010) and Hartman et al. (2008) argue that the web is becoming more and more a place where visitors aim to fulfil their hedonic needs. Childers et al (2001) conclude that “the more immersive, hedonic aspects of the new media play at least an equal role”, compared to utilitarian aspects. Eroglu, Machleit and Davis (2001) conclude that online store atmosphere definitely makes a

difference in conversion rates. Their experiment showed that increasing the atmospheric qualities of the online store website increases the level of pleasure felt by the shopper. As both classical as expressive aesthetic features contribute to the atmospheric qualities, the following two hypotheses can be constructed:

H2: Visitors are more likely to make a buying decision when the webshop scores high on classic aesthetic design.

H3: Visitors are more likely to make a buying decision when the webshop scores high on expressive aesthetic design.

In the introduction the alternate school of thought focussing on research on the "halo/horn effect" of aesthetics was mentioned. These studies argue that the first impression of a website, which is mainly formed by the design, is an important factor in the perceived quality of the webshop and in turn that this perceived quality has a strong influence on the visitors' buying behaviour. However, studies on this topic show that there is no correlation between the first split-second impression of a website and the consumers' buying intention after browsing the website without a time limit (Constantinides and Geurts 2005; Lindgaard et al., 2006; Tractinsky et al., 2006; Lorenzo et al., 2007).

For the school of thought pursued in this study, the results are more ambiguous. Some studies found no evidence for an influence of online buyers' preferences (Constantinides and Geurts, 2005), while others did find evidence to support this claim (Lorenzo et al., 2007; Wang et al., 2010; Wang et al., 2011; Lorenzo-Romero et al., 2013). Lorenzo-Romero et al. (2013) report a positive influence of both classic and expressive design on the buying intentions of visitors. The participants in this study were not given a specific buying task, therefore it can be assumed that the participants of this particular research were mainly hedonic shoppers, seeing as they were asked to browse the websites provided in the experiment, and were not assigned a specific purchase task.

Looking back at the gratification studies discussed in the previous subchapter, a basis can be found to assume that hedonic and utilitarian shoppers will be influenced differently by classic and expressive aesthetics. Simply put, utilitarian visitors aim to

make a purchase, in order to fulfil their content gratification. These visitors will need information which is easy to access and digest, translating to aesthetic formality. Hedonic visitors are motivated by the enjoyment of shopping for its own sake and are driven by process gratification; they are not looking for specific products. These visitors are looking for environmental stimuli, which could be generated by beautiful, original and inspiring design. A positive effect of both classic and expressive aesthetics on consumers of both groups can be explained by research drawing on the appraisal theory of emotions (Frijda, 1994). Positive emotions can be a result of a match between environmental stimuli and the goal of an individual. For a shopper with buying intentions, finding the right information and getting through the payment process without frustrations are examples of positive emotions. In a situation in which an individual does not possess a goal, positive emotions are the result of the hedonic property of environmental stimuli. These are intrinsically preferred by human beings (Maslow, 1970) and have a positive effect on impulse buying behaviour (Kim and Eastin, 2011). This translates into the following hypotheses:

H4: The positive effect of classic design of webshops on buying intentions is stronger for utilitarian shoppers than for hedonic shoppers.

H5: The positive effect of expressive design of webshops on buying intentions is stronger for hedonic shoppers than for utilitarian shoppers.

Research by Wang et al. (2010; 2011) further highlights the importance of a bi-dimensional approach to research on the effect of web aesthetics on consumer behaviour. Wang, Hernandez and Minor (2010), are the first to make a case for a distinction between hedonic and utilitarian shoppers in studies focussing on the effect of aesthetics on (online) consumer behaviour. However they focus on the different effects of classic and expressive design on the satisfaction and perceived online service of shoppers with- and without a purchasing task. They concluded that aesthetic formality has a strong effect of both the perceived online service as the satisfaction of utilitarian shoppers. Contrary, for shoppers without a purchase task aesthetic appeal is a more important factor in determining their evaluations and emotions. Moreover, higher aesthetic formality is preferred at all times, while higher aesthetic appeal may lead to negative affective consequences. The main reason for

this is that high aesthetic appeal may distract from the original goal of the visitor, and may require extra energy to complete the tasks in an environment. The study does not test for a relationship between aesthetics and buying intentions.

In continued research by Wang, Minor and Wei (2011), the effects of both aesthetic appeal and aesthetic formality on the visitors' emotions are further explored. In the first stage of their research they measure the effect of both formality and appeal on satisfaction, arousal and online service quality. In the second stage they measure the effects of satisfaction, arousal and online service quality on purchase intentions, consultations, search motivations and revisit motivations. Overall they conclude that for consumers with a purchase task there is an indirect positive effect of aesthetic formality on purchase intentions and revisit intentions, and that there is a negative effect of aesthetic appeal on purchase intentions, but a positive influence of aesthetic appeal on revisit intentions. However this study does not test for a direct relationship between aesthetics and buying intentions.

2.5 Research framework and hypotheses

Rather than focussing on hierarchical responses to web aesthetics, like Wang et al. (2010; 2011) this study focusses on the direct relation between visitors' motives and buying behaviour, and the moderating effect of aesthetics on this relationship. This study attempts to examine how shoppers' with different motives respond to the two dimensions of aesthetics in an online environment in terms of purchasing decisions. Based on the literature review in the previous paragraphs, the following hypotheses have been formulated:

H1: Utilitarian visitors have stronger buying intentions than hedonic visitors.

H2: Visitors are more likely to make a buying decision when the webshop scores higher on classic aesthetic design.

H3: The positive effect of classic design of webshops on buying intentions is stronger for utilitarian shoppers than for hedonic shoppers.

H4: Visitors are more likely to make a buying decision when the webshop scores higher on expressive aesthetic design.

H5: The positive effect of expressive design of webshops on buying intentions is stronger for hedonic shoppers than for utilitarian shoppers.

These hypotheses can be translated in the model displayed in figure 1. In the next chapter a methodology will be discussed to test this model using a randomised experiment.

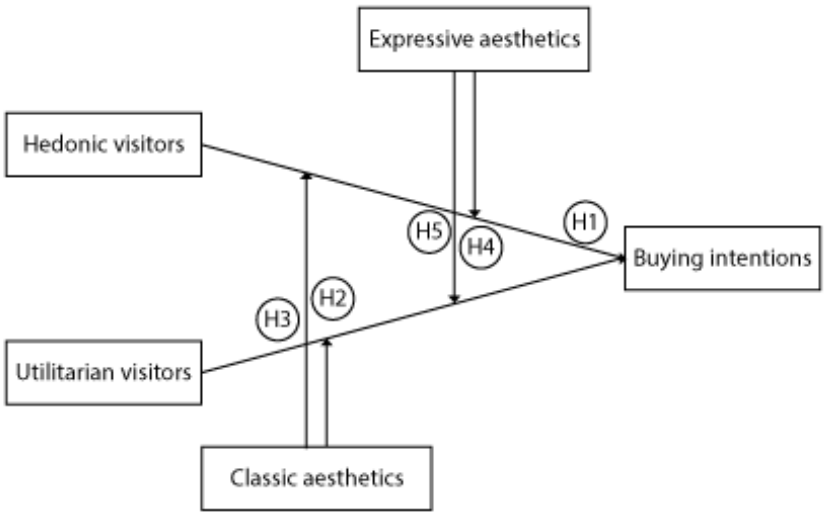


Figure 1 - Research model

3. Methodology

A positivism research philosophy has been adopted in this research. In Chapter 2 the conducted literature study has been described, which was used to identify correlations between aesthetics, visitors' motives and consumer behaviour, and to develop hypotheses. This approach resulted in the model depicted in figure 1. Chapter 3 will focus on the design of the conducted experiment, which was used to test the model. Furthermore this chapter will discuss the reasons for this methodology, the sample selection, the instruments used for data collection and the contextual boundaries of this study.

The main reason to design an experiment and apply this methodology is that the goal is to study causal relationships. To study whether the motive of a visitor has an effect on the relationship between the aesthetics of a webshop and the buying intentions of its visitor it is necessary to have groups for both motives. To ensure that both groups are exactly similar in their background biases the assignment was done on a random base (Saunders M, Lewis P, Thornhill A, 2009).

As this experiment is conducted within the boundaries of a bachelor thesis, there were limitations of time and resources; therefore it was not possible to conduct a longitudal experiment. Within these limits only one observation was possible so it was decided to assign the treatment immediately, and only compare the differences between the groups and not compare the differences between a before treatment and after treatment observation.

The methodology approach of this experiment was chosen to keep in line with previous research by Lorenzo et al. (2013) covering the same aesthetical subjects, while adding information about the different motives of visitors, thus incorporating key elements of research by Wang et al., (2010; 2011). Thus the outlines of this methodology are similar to that of one of the other studies on this topic.

The entire experiment was conducted online, to make use of the advantages this provides. Due to the online availability of the experiment it was possible to reach participants which otherwise would not be available. Moreover the time and effort to

have 137 participants was very little thanks to this, leaving time to perform other tasks during the experiment (Wright, 2006).

However conducting the experiment online also has some disadvantages. As there is no supervision present at the time of the experiment, there is no guarantee that participants provide accurate demographic information (Wright, 2006). Moreover as the web is open to everyone, relatively little may be known about the characteristics of these people (Dillman, 2000). In an attempt to counter these disadvantages, the experiment address has only been supplied to online groups exclusive to students of the University of Twente. Unfortunately this is no guarantee that no outsiders participated, but it can be assumed that the majority of participants were students.

3.1 Variables and units of analyses

3.1.1 Independent variables

At the beginning of the experiment each participant was randomly assigned a role of either hedonic shopper, or utilitarian shopper. Based on this assignment they were presented with one of the instructions in Appendix II. The random assignment was performed by the online survey tool using the randomisation tools available in the programming language (Matsumoto, M., & Nishimura, T. 1998), thus no human intervention in this process was possible.

The second independent variable was the perceived aesthetics of each webshop. As we used existing webshops in this experiment it was not possible to alter design aspects of the webshops. The classification of the aesthetics for each webshop was done by the participants themselves. They were asked to rate each webshop on eight different design aspects, which are discussed in Chapter 2.2. The exact questions can be found in Appendix II. Each aspect was rated by the participant on a five point Likert scale.

3.1.2. Dependent variable

The dependent variable in this experiment is the buying intentions of the visitor. For obvious reasons it was not possible to include data on real purchases in this study, therefore the buying intentions were measured by two questions:

"I will return to this webshop"

"I would order a product from this webshop"

These two variables will be recoded into one cumulative intention variable; this process is described in Chapter 4.

3.1.3 Units of analysis

The units of analysis consist of website visitors'. As it was not possible to ask "real" visitors to participate in the experiment, participants were recruited amongst students of the University of Twente, in Enschede. The main reason to limit the population to students was for the sake of simplicity. As this experiment was conducted within the framework of a bachelor thesis, time and resources were limited. The sample consisted of 135 participants

For this experiment "real-world" existing webshops were used. The shops were selected based on the Google ranking of each webshop, as this is often the starting point in web searches for people on the web. For this research the initial selection included the seven top ranking webshops in Google for the search query "laptop kopen", not including paid results. An overview of all webshops can be found in Appendix I.

3.2 Instruments

3.2.1 Procedure

The entire experiment was set up as an online tool. By visiting the URL of the tool students were introduced to the experiment and asked to participate. If the student actively chose to participate, the experiment was started instantly. Thusly the participants were not under personal observation during the experiment.

The experiment consisted of three steps. The first step asked the participants to answer some questions about their online shopping experiences and their demographics, the second step was the assignment to either a hedonic or utilitarian motive and the third step was visiting five webshops, rating its' aesthetic values and indicating the visitors' buying intentions. The visitors were asked to rate each webshop

and indicate their intentions after each webshop, and before visiting the next. All of the questions and screenshots of the experiment can be found in the Appendix II.

3.2.2 Contextual boundaries of the methodology

One of the main limitations in this research is the sampling frame, as time and resources were limited, so was the sampling frame. This experiment is only limited to university students, which is in no way a representative sample for the population of online shoppers. The implications of this sample will be discussed in Chapter 5.5. Furthermore each student was asked to rate four different webshops, thus while the students were not asked to rate the webshops compared to each other, the ratings are not entirely independent either. However participants only rated one webshop at the time, and were not able to adjust their responses after they proceeded to the next webshop.

Another limitation of the used methodology is the lack of data on real purchases. In this experiment the buying intentions were simulated, and participants were asked about hypothetical behaviour. The hypothetical behaviour will probably deviate from the behaviour were these shoppers making genuine purchases.

3.2.3 Assumptions

Since this is an experiment, there is no need for the subjects to be randomly selected from any particular population. What needs to be checked is whether they were assigned randomly to treatment groups. As this was the case for the hedonic and utilitarian roles, the independent group assumption was met. Moreover webshops were also assigned to each participant on a random base, making sure that every webshop was rated by a randomly selected sample. Furthermore the histograms of the answers of both are unimodal, and symmetric enough to assume a normal distribution. These histograms can be found in Appendix III.

4. Analysis of data

4.1 Data description

For the experiment participants were recruited among students of the University of Twente. In total 135 students participated in the experiment, 42.2% of them were women and 57.8% were men. All participants had experience with online shopping, with only 1.7% of females and 14% of males spending over €1,000 per year online. 54.1% of the respondents were assigned a utilitarian role, and 45.9% participants were assigned a hedonic role.

Each participant browsed four different websites, which resulted in a dataset of 537 cases, with 13 variables for each case. Variable q1 trough q10 correspond to the questions asked in the experiment, these can be found in Appendix III along with their (normal) distributions. The other variables were to identify roles, unique participants and the visited webshops.

The mean of variables q1 trough q4 will be used to express the “classic design score”, and the mean of q5 trough q8 will be used to express the “expressive design score”. To test the reliability of summated scales the Cronbach Alpha coefficient is calculated. This coefficient is used to measure the reliability of a test relative to other tests with the same number of items, and measuring the same construct of interest (Santos, J. 1999). The Cronbach Alpha value for variable q1 trough q4 is 0.742 and for variable q5 trough q8 the Cronbach Alpha is 0.717, which is enough to assume that these variables are coherent enough to combine into one mean score. Further inspection of the variables can be found in Appendix IV.

For the assessment of buying intentions the respondents were asked to answer two questions: whether they would return to the webshop (no, maybe, yes) and whether they would buy something from the webshop (no, maybe, yes). Regression analysis shows that these two variables have a strong correlation ($r^2 = 0.374$). Combined with a Cronbachs’ Alpha of 0.759 all assumptions are met to cumulate q9 and q10 into one variable.

When selecting the webshops for the experiment it was expected that the sample would include approximately the same amount of webshops scoring high on classic values, as the amount of webshops scoring high on expressive values. The scatterplot in figure 2 shows that while there is indeed a fairly even distribution of webshops, the relationship of the dimensions is different than expected. It was expected to see webshops which scored high on expressive values would score low on classic values, and webshops which scored high on classic values would score low on expressive values (Lavie and Tractinsky, 2004). However this is not the case, especially Sony, Samsung and Apple seem to score high on both aspects, while it was expected by the researcher that those would only score high on the expressive aspects.

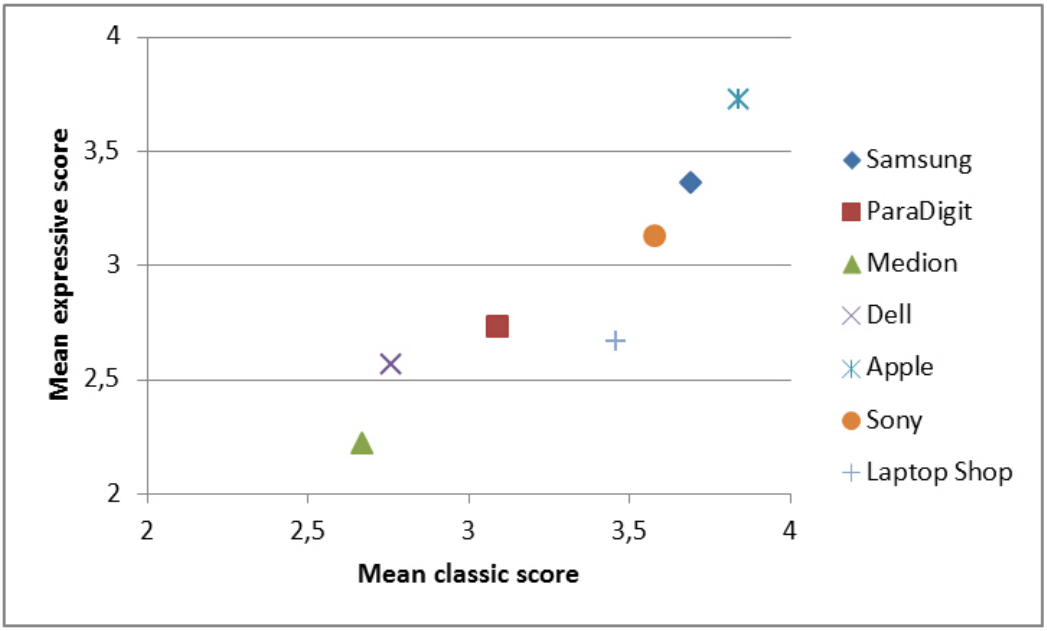


Figure 2 – Webshops used in the experiment and their classic and expressive scores

4.2 Analysis of hypotheses

H1: Utilitarian visitors have stronger buying intentions than hedonic visitors.

The first hypothesis in this study is that “the visitors’ motive influences visitors’ buying behaviour”. Performing a crosstab analysis, the χ^2 score is on the edge of significance (.055), though it does not provide enough evidence to assume a significant difference between utilitarian and hedonic shoppers. Because the experiment has a large sample group (N=537), and analysis of the responses showed that these are normally

distributed it is safe to test for differences in means. Using a two-sided t-test it can be concluded that there is a significant difference (p=0.0415) in means of buying intentions between utilitarian and hedonic shoppers, where utilitarian shoppers are more inclined to make buying decisions than hedonic shoppers. This difference in results calls for a more detailed look to the data. In Appendix V the results of a per site comparison of means can be found. This additional analysis shows that the hypotheses holds true for only two (ParaDigit and Laptop Shop) of the seven webshops in this experiment Based on these results this hypothesis is rejected.

H2: Visitors are more likely to make a buying decision when the webshop scores higher on classic aesthetic design.

As the level of measurement is too low to apply regression analyses or to compare differences in means, a cross tab analysis is preferred. However, before a cross tab analysis can be applied the variable class_score has to be recoded into a new binned ordinal variable. The frequency tables are displayed in appendix VI. Based on the spread of data for both utilitarian and hedonic visitors the variable is binned into four equally percentile categories.

The ChiSquared test results in $\chi^2 = 79.406$ and df=12. Thus it can be conclude that there is a significant influence of the classic score of a webshop on a visitors' buying intention. However when calculating the Kendall's tau-c score (0.259) this influence appears to be moderate.

Given that the study consists of a large N, and backed up by the crosstab analysis above, a linear regression analysis is performed on the original unbinned class_score variable. This results in $r^2=0.115$, which leads to the same conclusion as the ordinal tests, while there is a significant positive influence of the classic score of a webshop on the buying intentions of utilitarian visitors, this influence is moderate at best. Based on these results this hypothesis is accepted.

H3: The positive effect of classic design of webshops on buying intentions is stronger for utilitarian shoppers than for hedonic shoppers.

To test this hypothesis a Univariate Linear Model is used. The descriptive table shows no noteworthy differences in standard deviations and N's, and the Levene's Test of Equality of Error Variances reports no significant differences.

When testing the influence of the visitors' role combined with the classic score on the buying intentions of the visitor, a significant influence is found ($p = 0.078$). As this is a two-sided test this number needs to be divided by 2. Based on this result this hypothesis is accepted.

H4: Visitors are more likely to make a buying decision when the webshop scores higher on expressive aesthetic design.

Like the data for hypothesis 2, the level of measurement is too low to apply a regression analyses or to compare differences in means. Therefore the variable exp_score is also recoded into a new binned variable, using the same criteria as the recoding of the classic score.

A positive trend can be seen where the intention increases when the expressive score increases. The Chi-Square test with $\chi^2 = 37.419$ and df=12 confirms this and shows a significant positive relation between the expressive score and the shoppers' buying intentions. Kendall's Tau-c analysis (0.156), however, shows that while significant, this effect is weak, which is supported by a regression analysis which results in an $r^2 = 0.044$. Based on these results this hypothesis is accepted.

H5: The positive effect of expressive design of webshops on buying intentions is stronger for hedonic shoppers than for utilitarian shoppers.

To test this hypothesis a Univariate Linear Model is used. The descriptive table shows no noteworthy differences in standard deviations and N's, and the Levene's Test of Equality of Error Variances reports no significant differences.

When testing the influence of the visitors' role combined with the expressive score on the buying intentions of the visitor, the value found ($p = 0.635$) is not significant. Based on these results this hypothesis is rejected.

5. Conclusions and implications

5.1 Introduction

This study set out to expand on the studies of Lorenzo et al. (2013), Wang et al. (2011). Where those studies focused on the effect of web aesthetics on customers, an effort was made in this research to study the effects on different types of customers. In line with earlier studies, aesthetics was defined in two categories; classic and expressive. In Chapter 2.3 a case was made for two types of shoppers, hedonic shoppers and utilitarian shoppers. Based on appraisal theories (Frijda, 1994) it was hypothesized that classic aesthetics would have a stronger influence on the buying intentions of utilitarian shoppers, while expressive aesthetics would have a stronger influence on the buying intentions of hedonic shoppers. Figure 3 shows the proposed resea

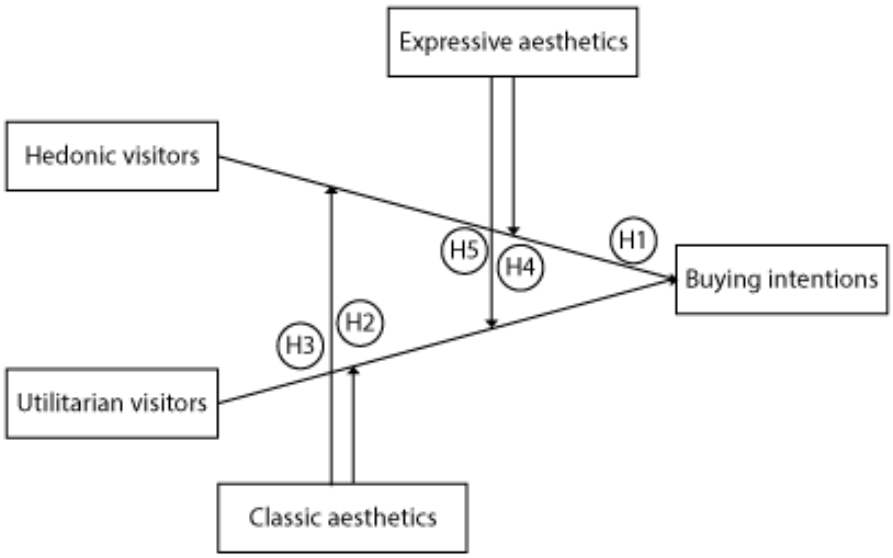


Figure 3 – Research model

5.2 Conclusions about research issues and propositions

5.2.1 Utilitarian shoppers have stronger buying intentions than hedonic shoppers.

Based on the statistical analysis of the hypothesis in chapter 4.2.1 it can be concluded that for a random webshop, there is no significant difference in the buying intentions of hedonic and utilitarian shoppers. However we did find some evidence when looking at

a site level, it stands out that the hypothesis does seem to be true for webshops not related to any brand. Brand-related webhops showed no evidence for this hypothesis. In this study only two of the seven webshops were neutral, while the other five were focused on one brand. The implications of this sample will be discussed in Chapter 5.4 and 5.5

5.2.2 Visitors are more likely to make a buying decision when the webshop scores higher on classic aesthetic design.

The analysis in Chapter 4.2.2 shows that the classic aesthetic score has a positive influence on the buying intentions of webshop visitors. This is a moderate effect, however studies have shown that aesthetics are only one of many factors (Constantinides, 2002) influencing buying intentions of shoppers. Therefore a moderate effect, if any, is to be expected. This result is in line with the studies of Wang et al. (2010; 2011) and Lorenzo-Romero et al. (2013), where similar conclusions were the outcome.

5.2.3 The positive effect of classic design of webshops on buying intentions is stronger for utilitarian shoppers than for hedonic shoppers.

The analysis in Chapter 4.2.3 showed that there is indeed a stronger effect of classic aesthetics on the buying intentions of utilitarian shoppers than on the buying intentions of hedonic shoppers. This conclusion is in accordance to the expectations risen in the literature review, and to the results of studies by Wang et al. (2011), which concluded that the utilitarian shoppers would be *"More likely to continue focusing on the purchase task until it is completed, without hesitation, additional consultation, or search; higher chance of re-visit",* while hedonic shoppers would be *"More likely to leave soon; lower chance of re-visit"* (Wang et al. 2011, p.54).

5.2.4 Visitors are more likely to make a buying decision when the webshop scores higher on expressive aesthetic design.

The analysis in Chapter 4.2.4 shows that while the expressive aesthetic score has a siginificant positive influence on the buying intentions of webshop visitors, this effect is very weak. As the expressive aspects of aesthetics contribute to the overall perceived beauty of a website, a positive influence was to be expected. However the effect on

buying intentions is a lot weaker in this experiment than it was the case in the study of Wang et al. (2011). It is important to note that in the sample of the experiment there were no webshops which were exclusively rated high on expressive aspects. The expressive scores had a strong positive correlation with the classic scores, thus the results of this analysis have to be put in perspective. More on this issue will be discussed in Chapter 5.6.

5.2.5. The positive effect of expressive design of webshops on buying intentions is stronger for hedonic shoppers than for utilitarian shoppers.

In Chapter 5.2.4 it was concluded that the effect of expressive aesthetics on visitors' buying intentions is very weak. When studying these effects on a role basis, no significant differences between the two groups are found: the effect of expressive aesthetics is the same for both hedonic and utilitarian shoppers. This is contradicting to the expectations based on the literature review, and to the results of the study by Wang et al. (2011). In that study a significant difference was found in the effects of aesthetic formality (expressive aesthetics) and the behavioural consequences of both task-oriented consumers and task-free consumers. The utilitarian shoppers would be *"More likely to discontinue the purchase task immediately and look for help, or switch to another website; lower chance of re-visit",* while hedonic shoppers would be *"More likely to explore the website in detail and browse other websites; may make impulsive purchase; may re-visit at a later time"* (Wang et al. 2011, p.54) for sites with a high aesthetic appeal, and a low formality.

As described in chapter 4.1, for the selected webshops in this research there was a strong correlation between expressive and classic aesthetics ratings. For webshops with a high formality and a high appeal in the study by Wang et al. (2011), which is more likely the case in this experiment the results were more in line with the results of this study. Task oriented shoppers "*may stop processing product information and seek additional information; more likely to make a re-visit at a later time (even if purchase is not made*", while task-free consumers are "*more likely to make impulsive purchases; more likely to browse other websites; more likely to re-visit at a later time*" (Wang et al. 2011, p54).

As the buying intentions in this experiment is operationalised as a combination of both purchase intentions and re-visit intentions, this could be one of the reasons for comparable results for both hedonic and utilitarian visitors. However the statistical analyses were also conducted for only the purchase intentions, which resulted in the exact same conclusion.

5.3 Conclusions about the research problem

In Chapter 1 we set out to identify and measure the importance of aesthetics (classic and expressive) as an influencer of buying intentions of both hedonic and utilitarian visitors. Filling in the results of the tests and discussions of the previous chapters we find a couple of problems with the model depicted in Chapter 2.4. We have not found evidence to suggest a positive relationship between the motive of a visitor and its buying intention, as this hypothesis only holds true for two of the seven webshops studied in the experiment.

In line with previous studies we have found evidence for a positive effect of classic aesthetic aspects of a webshop and visitors buying intentions, where a higher rating of classic elements has a moderate positive influence on the visitors' buying intentions. Furthermore this study also supports previous outcomes for the effect of expressive aesthetics on buying motives. We conclude that a high ranking on expressive aspects results in a (weak) positive effect on the visitors buying intentions.

Lastly we set out to examine whether the effect of classic aesthetics would be stronger for utilitarian shoppers, and whether the effect of expressive aesthetics would be stronger for hedonic shoppers. Of these two hypotheses only one holds ground. We have found evidence that for utilitarian shoppers the positive effect of classic aesthetics on their buying intentions is stronger than for hedonic shoppers. For expressive aesthetics however, we did not find any evidence for differences in effects on the intentions of utilitarian or hedonic shoppers.

While it was not one of the focus points of this research, it was found that there is reason to assume a different relationship between the two types of aesthetics than the literature review implied. Based on studies by Lavie and Tractinsky (2004), Schenkman and Jonsson (2000), Wang et al. (2010) and Lorenzo-Romero et al.

(2013) it was concluded that webshops would be either classic or expressive, while the ratings of the webshops studies in the experiment show a strong positive correlation between classic and expressive aesthetics. Even though the sample of webshops in this experiment was small (N = 7) this gives reasons to take a second look at how aesthetics of webshops is defined, and how these aspects relate to each other. This also implies that the webshops selected for this study were not as diverse in terms of aesthetics as was expected. In the study none of the webshops scored high on just classic aesthetic elements, or just expressive aesthetics elements, even though this was one of the premises of this research.

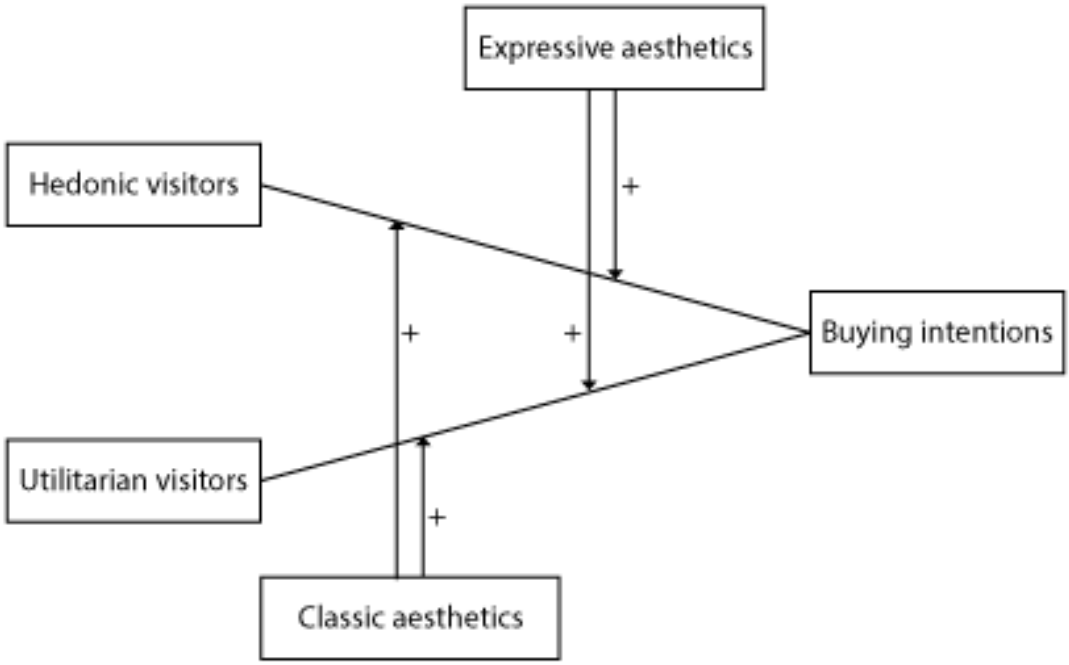


Figure 4 - The model based on the results of this study

5.4 Implications

The theory building part of this research provides a literature study based on the proposition of Wang et al. (2010) to identify shoppers as task-oriented or task-free. Based on social studies these two types of shoppers have been classified as utilitarian

(task-oriented) and hedonic (task-free). This study also provides an understanding based on existing literature as to why different types of shoppers would be influenced in different ways by different aspects of aesthetics.

Furthermore this study elaborates on research by Lorenzo-Romero et al. (2013), providing additional proof for the influence of classic and expressive aesthetics on buying intentions. Moreover, a layer has been added proving that the effects of classic aesthetics on buying intentions is different for shoppers with either a utilitarian or hedonic motive. This study also provides evidence that this is not the case for expressive aesthetics, and that the influence of these aesthetic elements is limited.

Moreover this study combines the constructs of previous studies (Wang et al., 2010; Wang et al., 2011; Lorenzo-Romero et al. 2013) and provides additional proof for the nature of the relationships between these constructs.

Based on solely this experiment, it is not possible to give marketers practical insights into the relationship between aesthetics, shoppers' motives and buying intentions. However when looking at the broader spectrum of experiments as mentioned in the previous paragraph, it is possible to provide some practical advice for marketers. The main advice that stems from these studies is an ambiguous one, pretty sites sell better, no matter if their unique aspects are based in the classic or expressive spectrum of aesthetics. Nevertheless, classic aesthetic elements have a far stronger positive effect on buying intentions than expressive aesthetic elements. Expressive elements can be distracting from the purchase task at hand, while classic elements will smoothen this process. Furthermore this effect is far stronger for utilitarian shoppers than for hedonic shoppers, while the effect of expressive aesthetic elements is the same for both types of shoppers. Thus a focus on classic aesthetic elements is always advisable, and even more so when the majority of visitors has a utilitarian motive.

5.5 Limitations

This study aims to provide an insight in consumer buying behaviour in the online environment. The population set out to be described consists of all online shoppers. However due to limitations of time and resources, the sample consisted of only students from the same university in the Netherlands. This results in a lack of validity to generalize inferences about the entire population.

The sample of webshops which were rated by the participants was limited to webshops only offering laptops, as the availability of participants was not large enough to be able to include different types of retailers. As the amount of available webshops is countless, and the large of different (niche) markets this study only scratches the surface of the entire population of webshops. While inferences made from this experiment will probably translate to other consumer electronic markets, the same cannot be said for markets like holidays, clothing, housing or others.

As discussed in the beginning of Chapter 4, there is evidence to assume a positive correlation between the aesthetic variables. Based on the studies as described in Chapter 2.1 a negative correlation was to be expected. This change in the dynamic between classic and expressive elements does not only affect the outcomes of this research, but also raises questions for potential further research. In the sample of webshops of this experiment webshops scored in approximately the same segments of both classic and expressive aesthetics, while there were no webshops scoring only high in the classic, or only high in the expressive element. Therefore this study cannot make any claims regarding the influence of solely classic designed webshops, or solely expressive designed webshops on visitors with either a hedonic or a utilitarian motive.

Another limitation of this research is that while the sample was fairly large (N = 537), the cases were not entirely independent, as each participant rated four different webshops. The webshops were assigned on random bases, and the participants were not asked to rank the webshops in accordance to one another, moreover the participants had to rate webshops one by one, and were not able to adjust their answers once they proceeded to the next webshop.

Lastly the sample of webshops used in this experiment contained webshops of high value brands, of which the participants most definitely had prior knowledge, while other webshops were far less widely-known. It was not possible to factor in the influence of brand awareness within the scope of this research, which could potentially have some moderating effects. However five of the seven webshops belonged to very visible brands, thus this effect will be present for the larger part of the webshops in the sample.

5.6 Future research agenda

As mentioned in Chapter 5.6 this experiment lacked webshops scoring high solely on classic elements, or solely on expressive elements. Moreover, the sites tested in this experiment, and in the experiment performed by Lorenzo-Romero et al. (2013) sold solely consumer electronic webshops. It is very reasonable to assume that the visitors of webshops in other markets, such as holidays or housing, respond to very different aspects in very different ways.

A suggestion for future research is to use a larger sample of sites, spread out over multiple markets. Doing so will not only provide more accurate data on the relationship between the proposed different aspects of aesthetics, but will also provide data on the behaviour of consumers in other markets.

In the studies conducted in this field of research none of the experiments took into account other data, such as Google ranking, turnover, development budget, whether the webshop is related to a specific brand or not and the brands' value. These aspects and many others may very well have a large confounding influence on the consumer behaviour, therefore it is recommended to gather this information as well to test for these influences.

It was noted in Chapter 5.2.1, that the sites for which the users' motive had a significant influence on their buying intentions were not brand related. Moreover these sites catalogued laptop models of a wide selection of brands. This experiment did not provide enough data to study the differences between brand-related and not brand-related webshops, but future research could. Interesting future research could be expanding the webshops sample to include webshops of different types of products,

and including an even sample of brand-related and not brand-related webshops and studying the different effects under different environments.

The literature suggests that especially classic aesthetics are an important influencer in the buying intentions of shoppers. This experiment provided additional statistical evidence for this claim, and shows that this effect differs between shoppers with different types of motives. With this insight this study has set a foundation for further research about the use of aesthetics in marketing towards online shoppers.

Lastly, one of the aims before starting this study was to take into account the effectiveness of A/B testing of websites. Many marketers are writing about the usage of statistical tools, to test different designs of websites for conversion rates. These tests are used to create a version of the website which has a statistically proven higher conversion rate. While there are many blog posts and books on the subject, there are no academic papers written about the topic. This experiment showed that a webshop with a balanced design with both classic and expressive aspects should have a stronger influence on consumers' buying behaviour than sites focussing on only one of these aspects. A/B testing could be a way to ensure this balance and create an optimal website.

Unfortunately it was not possible to take A/B testing into account during this experiment, it is however a topic which needs academic attention. Currently there are no real guidelines on A/B testing, and opinions about whether this new marketing tool works are fragmented. A future research agenda could be an explorative study on what A/B testing is, and how the application of this tool in the design of webshops functions. Later studies could focus on whether the conversion rates of sites using A/B tests are significantly higher than sites which don't use such tools, and whether A/B tests really work as a marketing tool.

References

Adam, S., Mulye, R., Kdeans, K. R., Palihawadana, D. (2002) E-marketing in perspective: a three country comparison of business use of the Internet. Marketing Intelligence & Planning, 20(4), 243-251

Alio, J., Ibrahim, M., Pickton, D., & Bassford, M. (2009, March). A systems-based media effectiveness framework for e-marketing communications. InSystems Conference, 2009 3rd Annual IEEE (pp. 150-155). IEEE.

Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. Journal of Retailing, 79(2), 77–95. doi:10.1016/S0022-4359(03)00007-1

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.

Barwise, P. and J.U. Farley (2005), “The state of interactive marketing in seven countries: interactive marketing comes of age,” Journal of Interactive Marketing, 19, 3, 67–80.

Batra, R., & Ahtola, O. T. (1991). Measuring the hedonic and utilitarian sources of consumer attitudes. Marketing Letters, 2(2), 159–170. doi:10.1007/BF00436035

Bennet, P. D. (1995). American MarketingAssociation. Dictionairy of Marketing Terms, 253.

Bianco, A. (2004). The vanashing mass market. BusinessWeek, July 12, 60-8

Borden, N. H. (1964). The Concept of the Marketing Mix ’. (G. Schwartz, Ed.)Business, 4(2), 2–7. Retrieved from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=10754131

Borev, Y., (1981) Aesthetics: A textbook. Progress Publishers, Moscow, 1985 (English translation)

Bottomley, P., and Doyle, J., (2006). The interactive effects of colors and products on perceptions of brand logo appropriateness. Marketing Theory 6(1): 63-83

Brodie, R.J., H. Winklhofer, N.E. Coviello, and W.J. Johnston (2007), “Is emarketing coming of age? An examination of the penetration of e-marketing and firm performance,” Journal of Interactive Marketing, 21, 1, 2–21.

Charney, T., & Greenberg, B. S. (2002). Uses and gratifications of the Internet.Communication technology and society: Audience adoption and uses, 379-407

Chaudhuri, S., Dayal, U., & Narasayya, V. (2011). An overview of business intelligence technology. Communications of the ACM, 54(8), 88-98.

Cheung, C. M. K., Kwong, L. Z. T., Chan, G. W. W., & Limayem, M. (2003). Online Consumer Behavior: A Review and Agenda for Future Research. 16 th Bled eCommerce Conference. Retrieved from https://domino.fov.uni-mb.si/proceedings.nsf/0/c9beda3ca328c8b7c1256ea1002c72b8/$FILE/16Cheung.pdf

Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. Journal of Retailing, 77(4), 511–535. doi:10.1016/S0022-4359(01)00056-2

Constantinides, E. (2006). The Marketing Mix Revisited: Towards the 21st Century Marketing by E. Constantinides. Journal of Marketing Management, 22(3), 439–450. doi:10.1362/026725706776861181

Constantinides, E., and Geurts, P., (2005). The impact of web experience on virtual buying behavior: An empirical study. Journal of Customer Behavior 4(3): 307-335

Constantinides, Efthymios. (2002). The 4S Web-Marketing Mix model. Electronic Commerce Research and Applications, 1(1), 57–76. doi:10.1016/S1567-4223(02)00006-6

Constantinides, Efthymios. (2004). Influencing the online consumer’s behavior: the Web experience. Internet Research, 14(2), 111–126. doi:10.1108/10662240410530835

Dillman, D. A. (2000). Mail and Internet Surveys: The Tailored Design Method. New York : John Wiley & Sons.

EMarketer. 2011. Online ad spend surpasses newspapers. http://www.emarketer.com/Article.aspx?R=1008126 (accessed April, 2014).

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric qualities of online retailing. Journal of Business Research, 54(2), 177–184. doi:10.1016/S0148-2963(99)00087-9

Fenner, D.E.W., 1996. Introduction to the Aesthetic Attitude, Humanities Press, Atlantic Highlands, NJ, pp. 2–19.

Fogg, B. J., C. Soohoo, D. R. Danielson, L. Marable, J. Stanford, and E. R. Tauber. 2003. How do users evaluate the credibility of websites? A study with over 2,500 participants. In Proceedings of the 2003 Conference on Designing for User Experiences. New York: ACM.

Frijda, N. H. (1994). Emotions are functional, most of the time.

Ganesh, J., Reynolds, K. E., Luckett, M., & Pomirleanu, N. (2010). Online shopper motivations, and e-store attributes: an examination of online patronage behavior and shopper typologies. Journal of Retailing, 86(1), 106-115.

Hanson, W. (2000), Principles of Internet Marketing, South-Western College Publishing, Cincinnati, OH.

Hartmann, J., Sutcliffe, A., & Angeli, A. D. (2008). Towards a theory of user judgment of aesthetics and user interface quality. ACM Transactions on Computer-Human Interaction (TOCHI), 15(4), 15.

Hausman, A. (2000). A multi-method investigation of consumer motivations in impulse buying behavior. Journal of Consumer Marketing, 17(5), 403–426. doi:10.1108/07363760010341045

Hirschman, E. C. (1980). Innovativeness, novelty seeking, and consumer creativity. Journal of Consumer Research, 283-295.

Hotho, S., & Champion, K. (2011). Small businesses in the new creative industries: innovation as a people management challenge. Management Decision, 49(1), 29-54.

Kalyanam, K., and S. Mclntyre. 2002. The e-marketing mix: A contribution of the e-tailing wars. Journal of the Academy of Marketing Science 30 (4): 487–499.

Kevin Lane Keller (2009) Building strong brands in a modern marketing communications environment, Journal of Marketing Communications, 15:2-3, 139-155, DOI: 10.1080/13527260902757530

Kiley, D. (2005). Hey, advertisers, TiVo is your friend. Business Week, 3955, 97.

Kim, S., & Eastin, M. S. (2011). Hedonic Tendencies and the Online Consumer: An Investigation of the Online Shopping Process. Journal of Internet Commerce, 10(1), 68–90. doi:10.1080/15332861.2011.558458

Kotler, P., Brown, L., Adam, S., Burton, S., & Armstrong, G. (2006). Marketing, 7th eds. China: Pearson Education Australia.

Lavie, T., & Tractinsky, N. (2004). Assessing dimensions of perceived visual aesthetics of web sites. International Journal of Human-Computer Studies, 60(3), 269–298. doi:10.1016/j.ijhcs.2003.09.002

Lindgaard, G., G. Fernandes, C. Dudek, and J. Brown. (2006). Attention web designers: You have 50 milliseconds to make a good first impression. Business & Information Technology 25 (2): 115–126.

Lorenzo, C., E. Constantinides, P. Geurts, and M. A. Gomez. (2007). Impact of web experience on e-consumer responses. DEXA 2007 Conference, September 3–7, Regensburg, Germany.

Lorenzo-Romero C., Constantinides E., Alarcón-del Amo M.d.C., 2013, Web aesthetics effects on user decisions: Impact of exposure length on website quality perceptions and buying intentions, Journal of Internet Commerce, vol. 12, issue 1, pp. 76 - 105

Maslow, A. H. (1970). Personality and motivation. Personality and motivation.

Matsumoto M., and Nishimura, T. (1998). Mersenne twister: a 623-dimensionally equidistributed uniform pseudo-random number generator. *ACM Trans. Model. Comput. Simul.* 8(1) 3-30.

Osborne, H. (1968). Aesthetics and art theory: An historical introduction. Longmans.

Ou, C. X., & Sia, C. L. (2010). Consumer trust and distrust: An issue of website design. International Journal of Human-Computer Studies, 68(12), 913–934. doi:10.1016/j.ijhcs.2010.08.003

Parker, B. J., & Plank, R. E. (2000). A uses and gratifications perspective on the Internet as a new information source. American Business Review, 18(2), 43-49.

Pendleton, J. (2004). Multi taskers. Ad Age, 75, 13.

Pickton, D., & Broderick, A. (2001). Integrated marketing communications. Harlow: Prentice Hall.

Porter, M.E. (2001), “Strategy and the Internet”, Harvard Business Review, March 2001.

Ramus, K., and N. A. Nielsen. 2005. Online grocery retailing: What do consumers think. Internet Research 15 (3): 335–352

Rayport, J. F., & Jaworski, B. J. (2002). Introduction to e-Commerce. McGraw-Hill/Irwin marketspaceU.

Riyad Eid & Hatem El-Gohary (2013) The impact of E-marketing use on small business enterprises' marketing success, The Service Industries Journal, 33:1, 31-50, DOI: 10.1080/02642069.2011.594878

Saunders, M. N., Saunders, M., Lewis, P., & Thornhill, A. (2011). Research methods for business students, 5/e. Pearson Education India.

Schaik, v. P., and J. Ling. 2009. The role of context in perceptions of the aesthetics of web pages over time. Human-Computer Studies 67:79–89.

Schenkman, B. N., & Jönsson, F. U. (2000). Aesthetics and preferences of web pages. Behaviour & Information Technology, 19(5), 367–377. doi:10.1080/014492900750000063

Schultz, D. E., & Kitchen, P. J. (2000). Communicating globally: An integrated marketing approach (Vol. 5). Lincolnwood, IL: NTC Business Books.

Sultan, F. and A.J. Rohm (2004), "The evolving role of the Internet in marketing strategy: an exploratory study," Journal of Interactive Marketing, 18, 2, 6–19.

Swanson, D. L. (1992). Understanding audiences: Continuing contributions of gratifications research. Poetics, 21(4), 305–328. doi:10.1016/0304-422X(92)90011-Q

Tamimi, N., M. Rajan, and R. Sebastianelli. 2003. The state of online retailing. Internet Research, Applications and Policy 13 (3): 146–155.

Tractinsky, N., Cokhavi, A., Kirschenbaum, M., & Sharfi, T. (2006). Evaluating the consistency of immediate aesthetic perceptions of web pages. International Journal of Human-Computer Studies, 64(11), 1071–1083. doi:10.1016/j.ijhcs.2006.06.009

Varadarajan, R., Yadav, M. S., (2009) Marketing Strategy in an Internet-Enabled Environment: A Retrospective on the First Ten Years of JIM and a Prospective on the Next Ten Years. Journal of Interactive Marketing, Volume 23, Issue 1, February 2009, Pages 11-22

Wang, Y. J., Hernandez, M. D., & Minor, M. S. (2010). Web aesthetics effects on perceived online service quality and satisfaction in an e-tail environment: The moderating role of purchase task. Journal of Business Research, 63(9-10), 935–942. doi:10.1016/j.jbusres.2009.01.016

Wang, Y. J., Minor, M. S., & Wei, J. (2011). Aesthetics and the online shopping environment: Understanding consumer responses. Journal of Retailing, 87(1), 46–58. doi:10.1016/j.jretai.2010.09.002

Wolfinbarger, M., & Gilly, M. C. (2001). Shopping online for freedom, control, and fun. California Management Review, 43(2), 34-55.

Wright, K. B. (2005), Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services. Journal of Computer-Mediated Communication, 10: 00

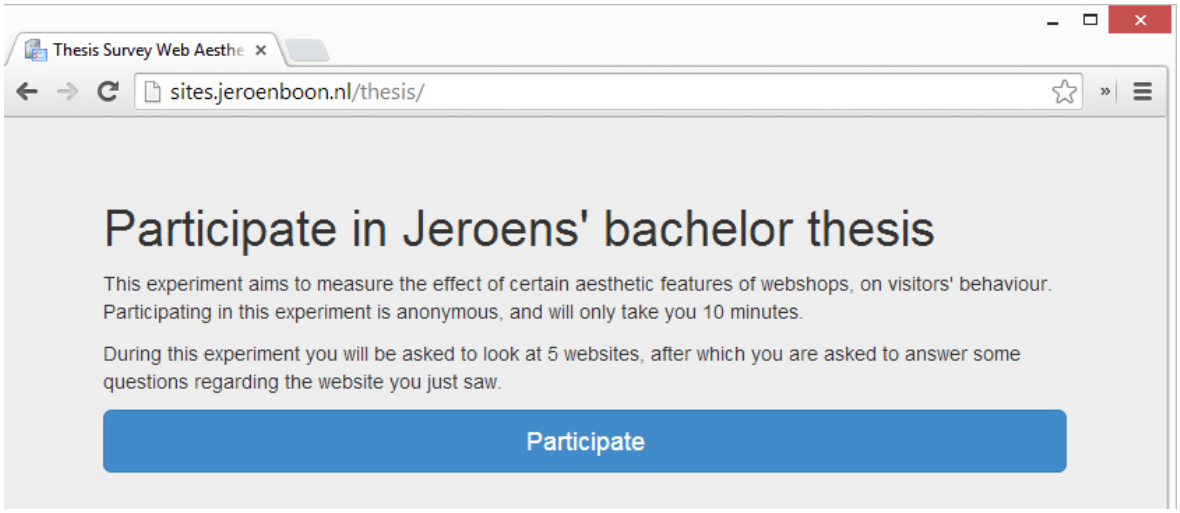
Yudulson, J. (1999), Adapting Mccarthy's Four P's for the twenty-first Century. Journal of Marketing Education 21(60), 60-67

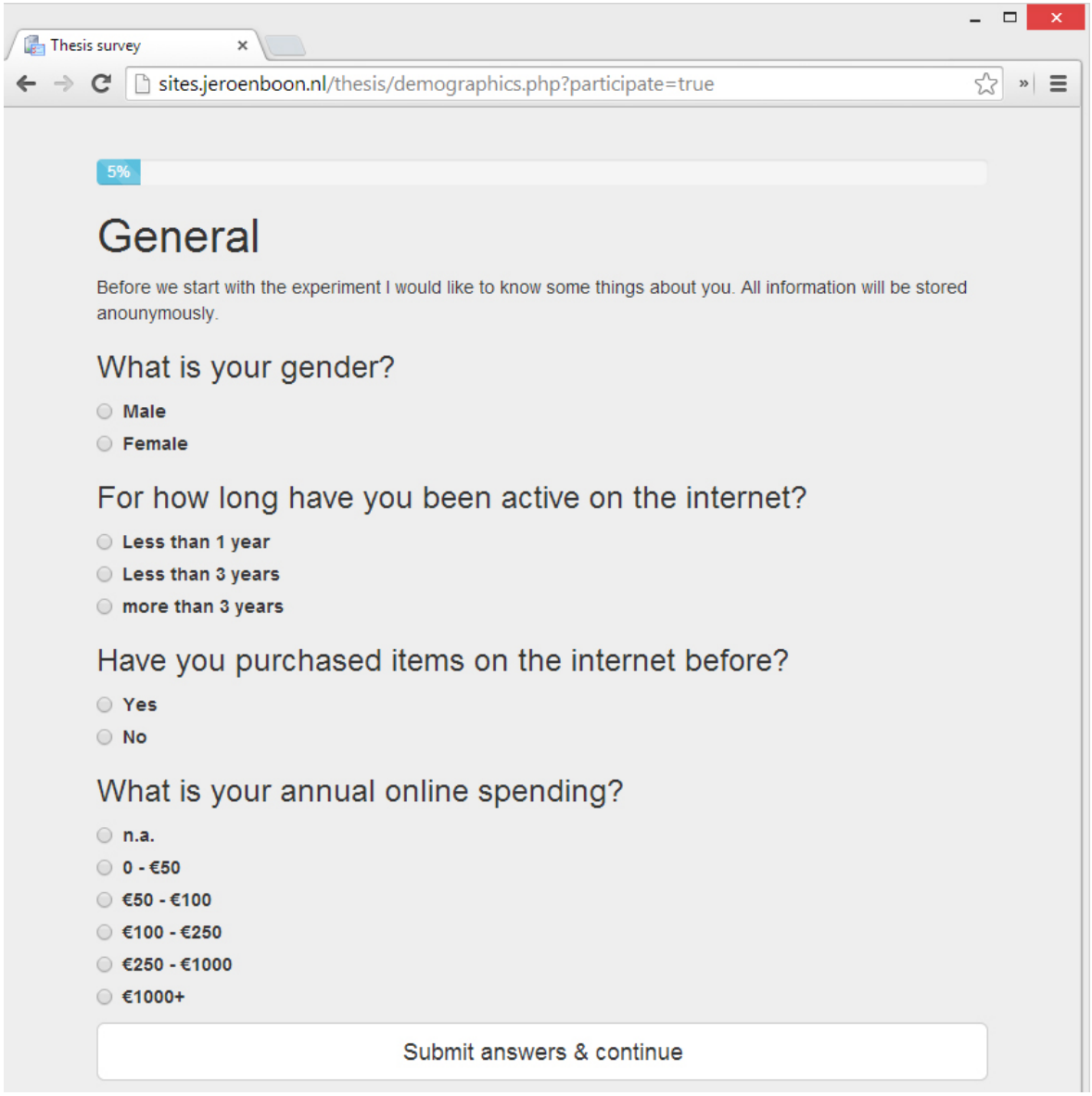
Appendixes

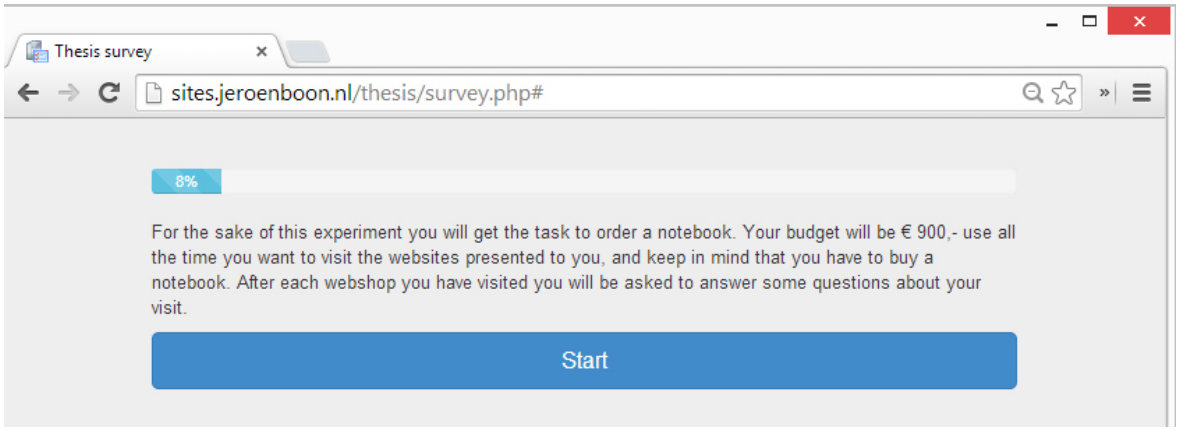
I. Webshop Sample

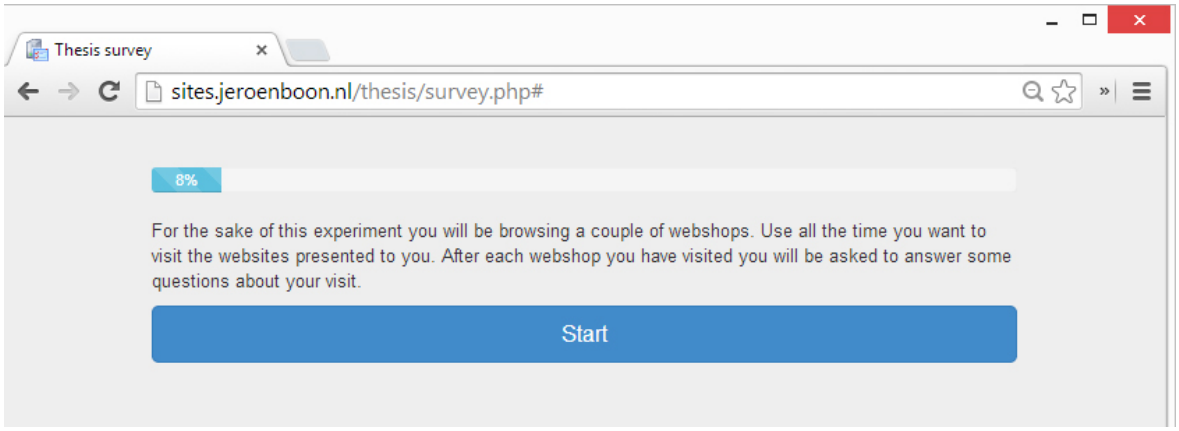
Name	URL
Samsung	Store.samsung.com/nl/
Paradigit	Paradigit.nl
Medion	Medion.com/nl/
Dell	Dell.com
Apple store	Store.apple.com
Sony	Store.sony.com
Laptop Shop	Laptopshop.nl

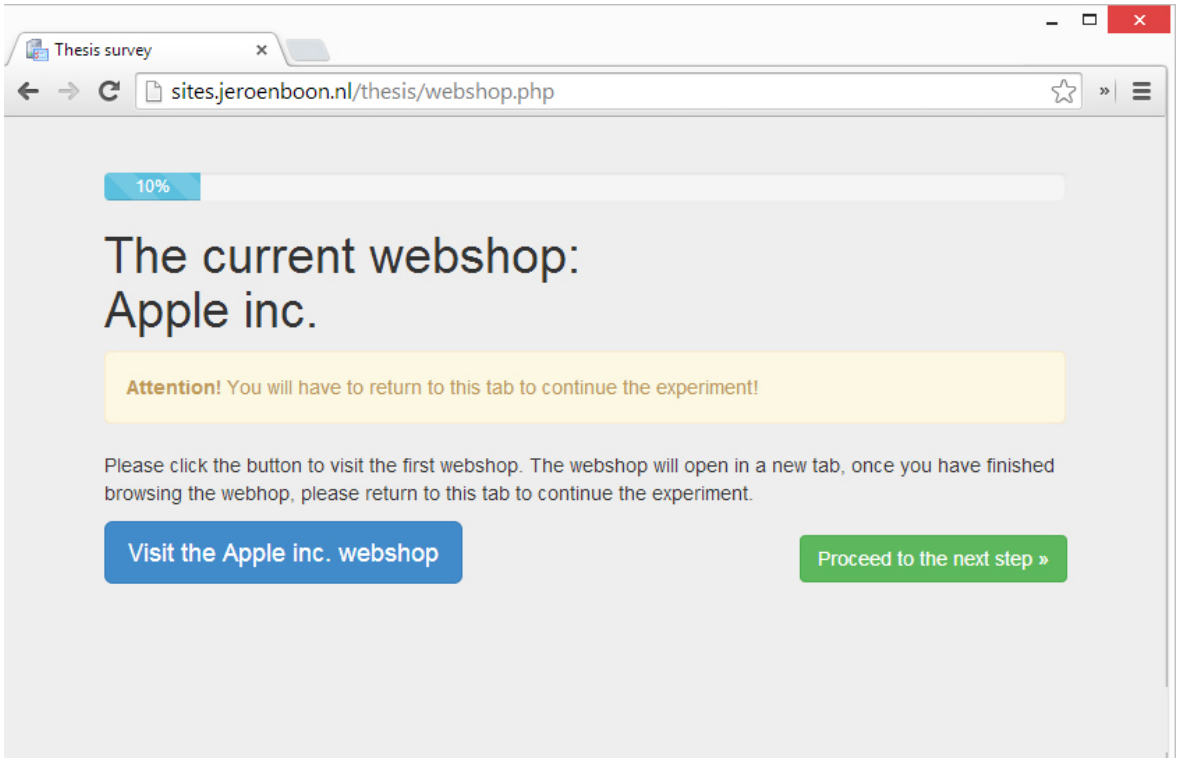
II. Experiment screenshots

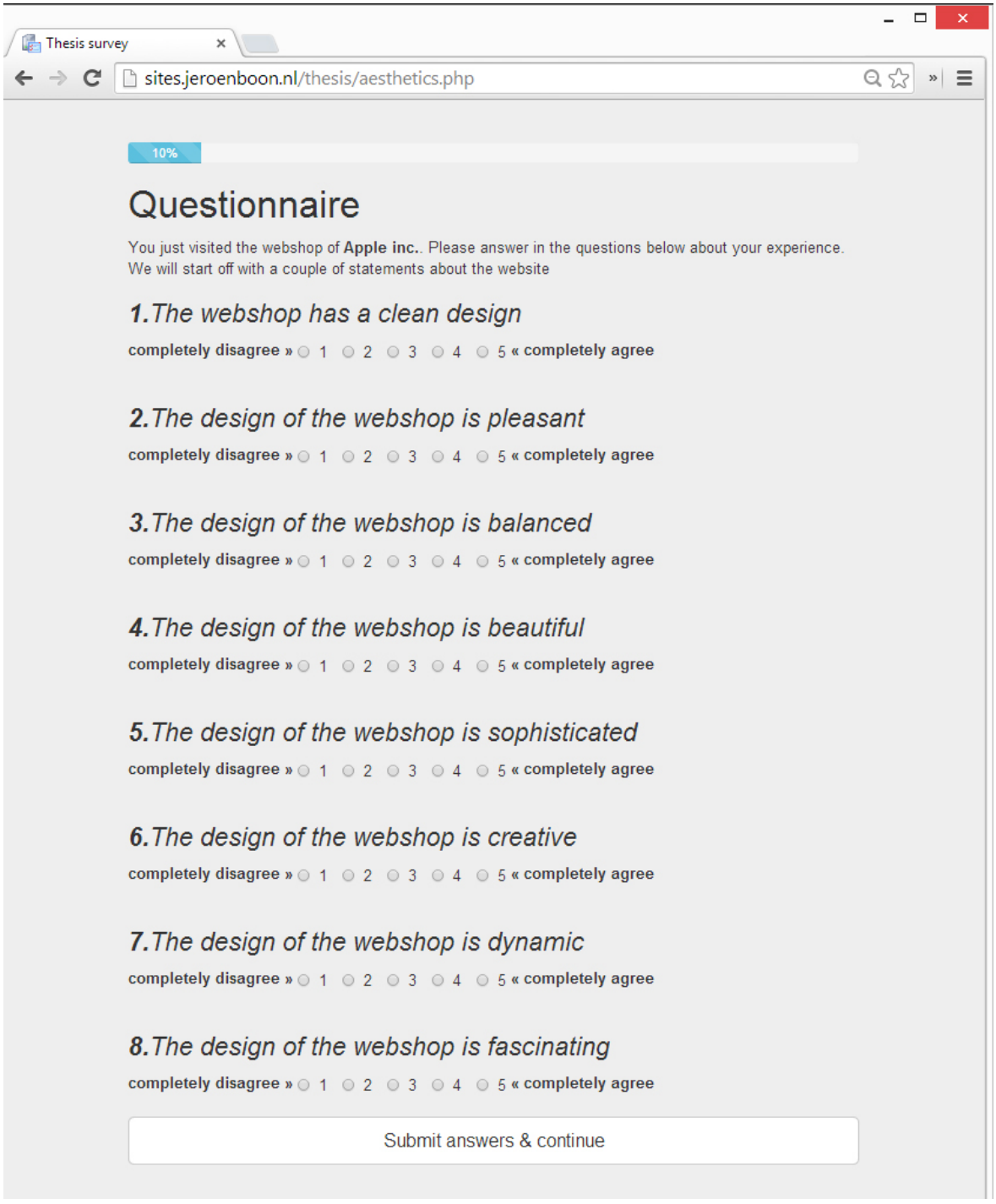


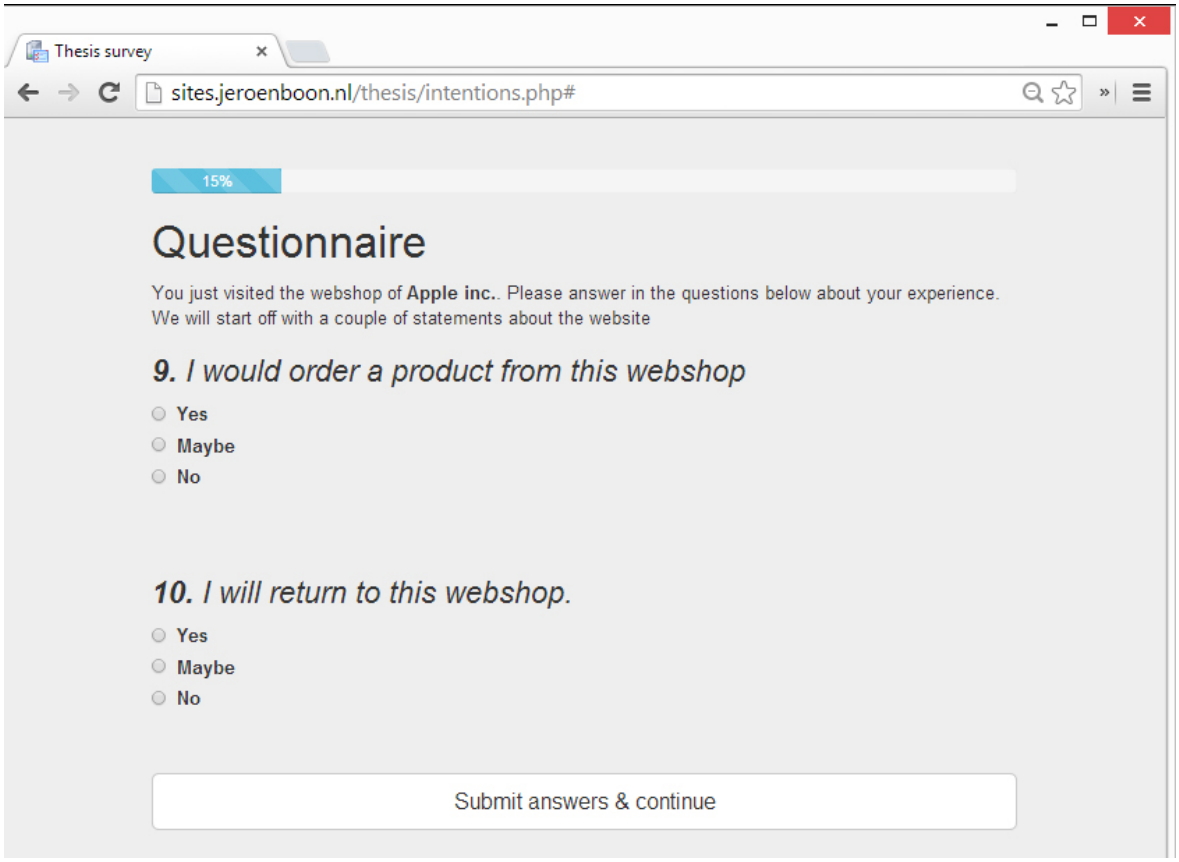

Thesis survey
sites.jeroenboon.nl/thesis/demographics.php?participate=true
5%
General
Before we start with the experiment I would like to know some things about you. All information will be stored anounymously.
What is your gender?
Male
Female
For how long have you been active on the internet?
Less than 1 year
Less than 3 years
more than 3 years
Have you purchased items on the internet before?
Yes
No
What is your annual online spending?
n.a.
0 - €50
€50 - €100
€100 - €250
€250 - €1000
€1000+
Submit answers & continue


Thesis survey
sites.jeroenboon.nl/thesis/survey.php#
8%
For the sake of this experiment you will get the task to order a notebook. Your budget will be € 900,- use all the time you want to visit the websites presented to you, and keep in mind that you have to buy a notebook. After each webshop you have visited you will be asked to answer some questions about your visit.
Start

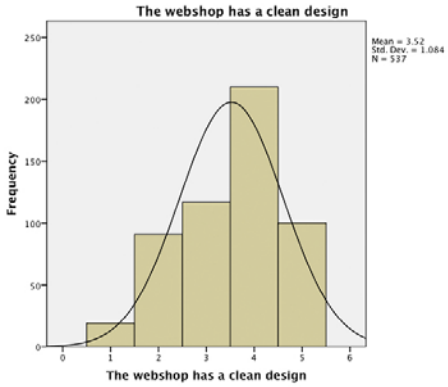

Thesis survey
sites.jeroenboon.nl/thesis/survey.php#
8%
For the sake of this experiment you will be browsing a couple of webshops. Use all the time you want to visit the websites presented to you. After each webshop you have visited you will be asked to answer some questions about your visit.
Start

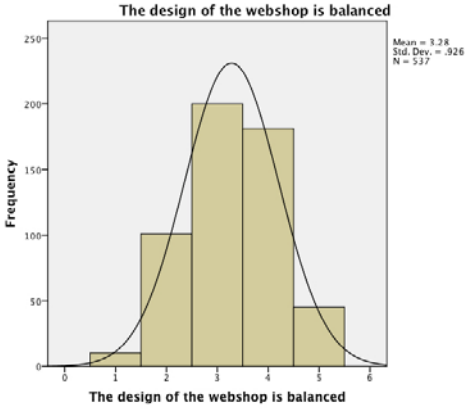

Thesis survey
sites.jeroenboon.nl/thesis/webshop.php
10%
The current webshop:
Apple inc.
Attention! You will have to return to this tab to continue the experiment!
Please click the button to visit the first webshop. The webshop will open in a new tab, once you have finished browsing the webhop, please return to this tab to continue the experiment.
Visit the Apple inc. webshop
Proceed to the next step »

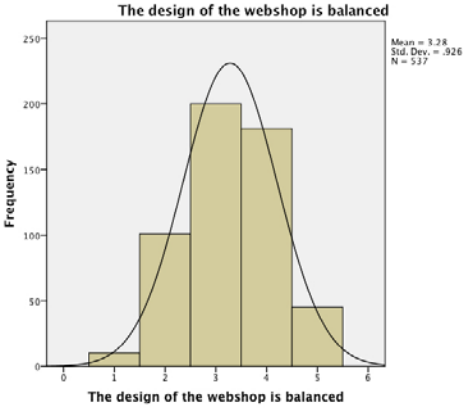

Thesis survey
sites.jeroenboon.nl/thesis/aesthetics.php
10%
Questionnaire
You just visited the webshop of Apple inc.. Please answer in the questions below about your experience.
We will start off with a couple of statements about the website
1. The webshop has a clean design
completely disagree » 1 2 3 4 5 « completely agree
2. The design of the webshop is pleasant
completely disagree » 1 2 3 4 5 « completely agree
3. The design of the webshop is balanced
completely disagree » 1 2 3 4 5 « completely agree
4. The design of the webshop is beautiful
completely disagree » 1 2 3 4 5 « completely agree
5. The design of the webshop is sophisticated
completely disagree » 1 2 3 4 5 « completely agree
6. The design of the webshop is creative
completely disagree » 1 2 3 4 5 « completely agree
7. The design of the webshop is dynamic
completely disagree » 1 2 3 4 5 « completely agree
8. The design of the webshop is fascinating
completely disagree » 1 2 3 4 5 « completely agree
Submit answers & continue

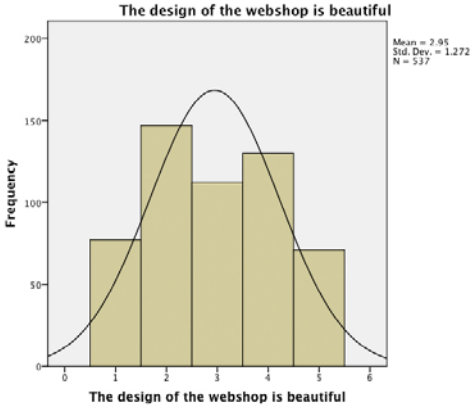

Thesis survey
sites.jeroenboon.nl/thesis/intentions.php#
15%
Questionnaire
You just visited the webshop of Apple inc.. Please answer in the questions below about your experience.
We will start off with a couple of statements about the website
9. I would order a product from this webshop
Yes
Maybe
No
10. I will return to this webshop.
Yes
Maybe
No
Submit answers & continue

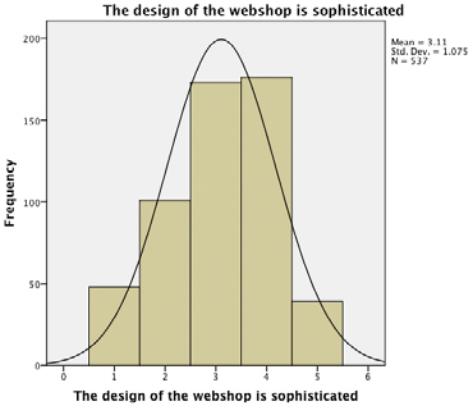
III. Data summaries

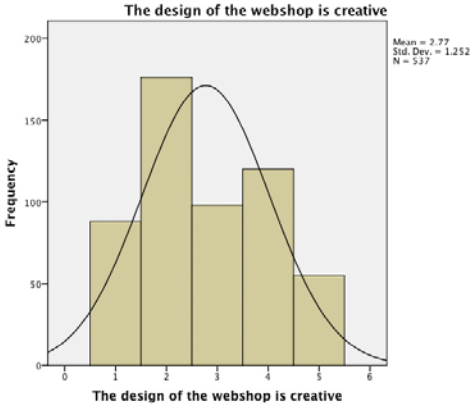


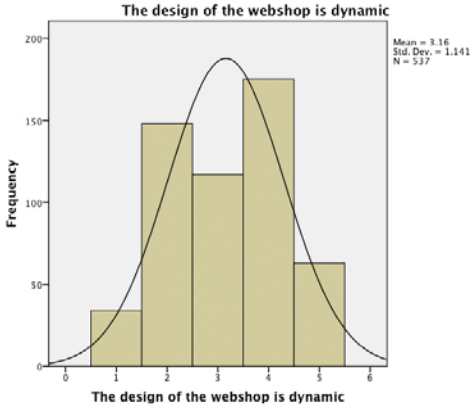


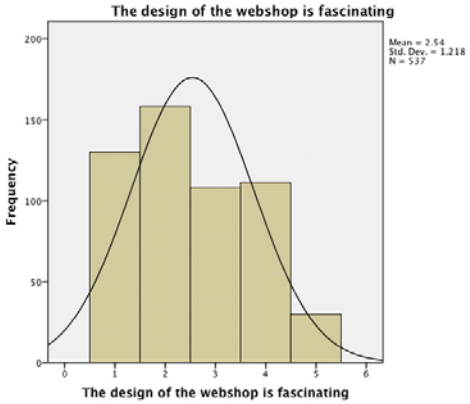


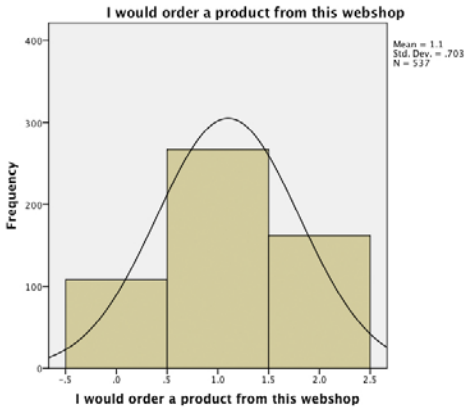


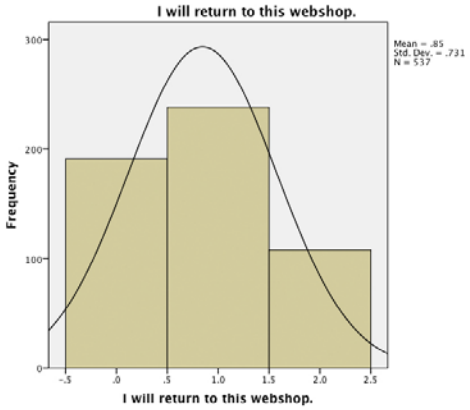





The design of the webshop is dynamic
Mean = 3.16
Std. Dev. = 1.141
N = 537
Frequency
The design of the webshop is dynamic


The design of the webshop is fascinating
Mean = 2.54
Std. Dev. = 1.218
N = 537
Frequency
The design of the webshop is fascinating


I would order a product from this webshop
Mean = 1.1
Std. Dev. = .703
N = 537
Frequency
I would order a product from this webshop


I will return to this webshop.
Mean = .85
Std. Dev. = .731
N = 537
Frequency
I will return to this webshop.

IV. Dependency Measures

Classic Aesthetic elements

Inter-Item Correlation Matrix

	The webshop has a clean design	The design of the webshop is pleasant	The design of the webshop is balanced	The design of the webshop is beautiful
The webshop has a clean design	1.000	.489	.430	.436
The design of the webshop is pleasant	.489	1.000	.408	.421
The design of the webshop is balanced	.430	.408	1.000	.369
The design of the webshop is beautiful	.436	.421	.369	1.000

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.742	.747	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
The webshop has a clean design	9.59	6.411	.581	.342	.657
The design of the webshop is pleasant	9.75	6.588	.562	.322	.668
The design of the webshop is balanced	9.83	7.384	.503	.258	.704
The design of the webshop is beautiful	10.16	5.951	.517	.268	.703

Expressive Aesthetic elements

Inter-Item Correlation Matrix

	The design of the webshop is sophisticated	The design of the webshop is creative	The design of the webshop is dynamic	The design of the webshop is fascinating
The design of the webshop is sophisticated	1.000	.320	.268	.398
The design of the webshop is creative	.320	1.000	.369	.548
The design of the webshop is dynamic	.268	.369	1.000	.402
The design of the webshop is fascinating	.398	.548	.402	1.000

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.717	.714	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
The design of the webshop is sophisticated	8.47	8.194	.416	.183	.703
The design of the webshop is creative	8.80	6.755	.551	.335	.625
The design of the webshop is dynamic	8.42	7.781	.444	.202	.689
The design of the webshop is fascinating	9.04	6.596	.612	.387	.585

Intention variables

Inter-Item Correlation Matrix

	I would order a product from this webshop	I will return to this webshop.
I would order a product from this webshop	1.000	.612
I will return to this webshop.	.612	1.000

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.759	.759	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I would order a product from this webshop	.85	.534	.612	.374	.
I will return to this webshop.	1.10	.494	.612	.374	.

V. Statistical tests of hypotheses

A. **H1**: Utilitarian visitors have stronger buying intentions than hedonic visitors.

User role * Cumulative Intention Crosstabulation

			Cumulative Intention					Total
			0	1	2	3	4	
User role	utilitarian	Count	50	39	93	71	39	292
		% within User role	17.1%	13.4%	31.8%	24.3%	13.4%	100.0%
	hedonic	Count	52	41	80	38	34	245
		% within User role	21.2%	16.7%	32.7%	15.5%	13.9%	100.0%
Total		Count	102	80	173	109	73	537
		% within User role	19.0%	14.9%	32.2%	20.3%	13.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.342[a]	4	.119
Likelihood Ratio	7.440	4	.114
Linear-by-Linear Association	3.011	1	.083
N of Valid Cases	537		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 33.31.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Cumulative Intention	Equal variances assumed	1.043	.308	1.738	535	.083	.193	.111	-.025	.412
	Equal variances not assumed			1.733	512.717	.084	.193	.112	-.026	.413

Group Statistics

Visited site		User role	N	Mean	Std. Deviation	Std. Error Mean
Samsung	Cumulative Intention	utilitarian	38	1.76	1.422	.231
		hedonic	35	1.63	1.285	.217
ParaDigit	Cumulative Intention	utilitarian	40	2.50	1.219	.193
		hedonic	40	2.00	1.086	.172
Medion	Cumulative Intention	utilitarian	49	1.27	.953	.136
		hedonic	39	1.41	1.117	.179
Dell	Cumulative Intention	utilitarian	40	1.43	1.174	.186
		hedonic	35	1.63	1.308	.221
Apple	Cumulative Intention	utilitarian	40	1.60	1.297	.205
		hedonic	31	1.87	1.384	.249
Sony	Cumulative Intention	utilitarian	43	2.58	.587	.089
		hedonic	39	2.21	1.418	.227
Laptop Shop	Cumulative Intention	utilitarian	42	3.17	.794	.122
		hedonic	26	2.23	1.478	.290

Independent Samples Test

Visited site			Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
Samsung	Cumulative Intention	Equal variances assumed	.836	.364	.423	71	.674	.135	.318	-.500	.769
		Equal variances not assumed			.425	70.977	.672	.135	.317	-.497	.767
ParaDigit	Cumulative Intention	Equal variances assumed	1.625	.206	1.936	78	.056	.500	.258	-.014	1.014
		Equal variances not assumed			1.936	76.975	.056	.500	.258	-.014	1.014
Medion	Cumulative Intention	Equal variances assumed	.785	.378	-.657	86	.513	-.145	.221	-.584	.294
		Equal variances not assumed			-.645	74.852	.521	-.145	.225	-.593	.303
Dell	Cumulative Intention	Equal variances assumed	.083	.774	-.710	73	.480	-.204	.287	-.775	.368
		Equal variances not assumed			-.705	68.962	.483	-.204	.289	-.780	.372
Apple	Cumulative Intention	Equal variances assumed	.000	.992	-.848	69	.399	-.271	.320	-.909	.367
		Equal variances not assumed			-.841	62.465	.404	-.271	.322	-.915	.373
Sony	Cumulative Intention	Equal variances assumed	20.595	.000	1.597	80	.114	.376	.236	-.093	.845
		Equal variances not assumed			1.542	49.647	.129	.376	.244	-.114	.866
Laptop Shop	Cumulative Intention	Equal variances assumed	22.206	.000	3.397	66	.001	.936	.276	.386	1.486
		Equal variances not assumed			2.974	34.062	.005	.936	.315	.296	1.575

User role * Cumulative Intention Crosstabulation[a]

			Cumulative Intention					Total
			0	1	2	3	4	
User role	utilitarian	Count	0	0	20	21	2	43
		% within User role	0.0%	0.0%	46.5%	48.8%	4.7%	100.0%
	hedonic	Count	7	3	15	3	11	39
		% within User role	17.9%	7.7%	38.5%	7.7%	28.2%	100.0%
Total		Count	7	3	35	24	13	82
		% within User role	8.5%	3.7%	42.7%	29.3%	15.9%	100.0%

a. Visited site = Sony

B. **H2**: Visitors are more likely to make a buying decision when the webshop scores higher on classic aesthetic design.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	79.406[a]	12	.000
Likelihood Ratio	80.029	12	.000
Linear-by-Linear Association	46.323	1	.000
N of Valid Cases	537		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.23.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-c	.259	.035	7.403	.000
N of Valid Cases		537			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

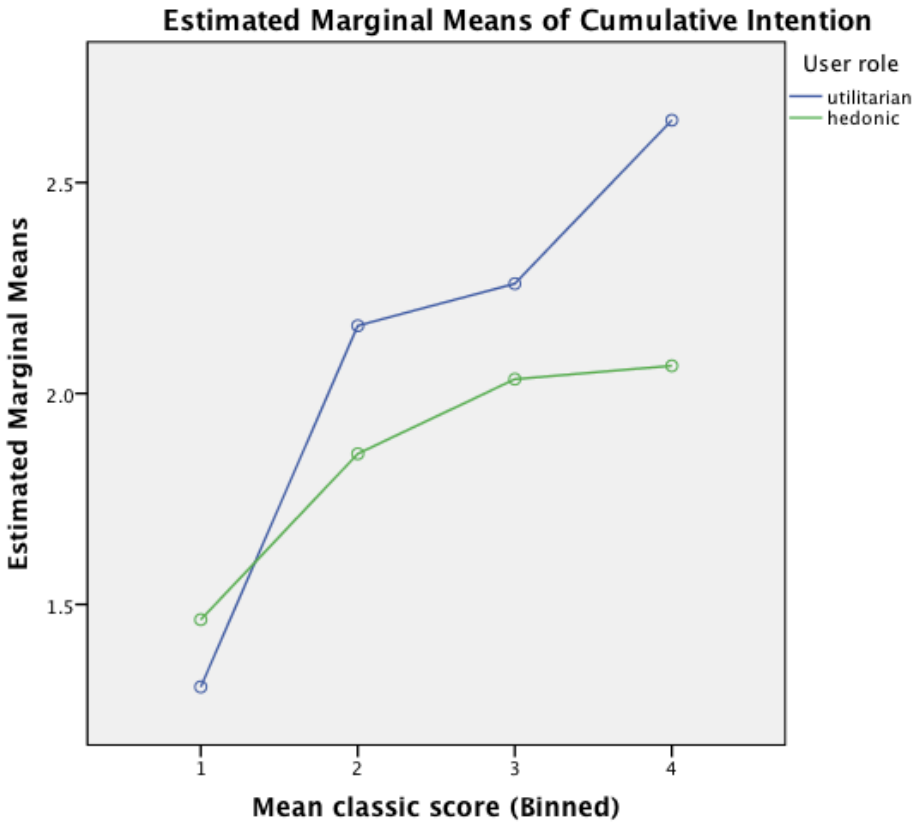
C. **H3**: The positive effect of classic design of webshops on buying intentions is stronger for utilitarian shoppers than for hedonic shoppers.

Tests of Between-Subjects Effects

Dependent Variable: Cumulative Intention

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	100.464[a]	7	14.352	9.647	.000
Intercept	2041.189	1	2041.189	1372.083	.000
class_score_binned	77.661	3	25.887	17.401	.000
Role	7.430	1	7.430	4.994	.026
class_score_binned * Role	10.178	3	3.393	2.281	.078
Error	786.970	529	1.488		
Total	2921.000	537			
Corrected Total	887.434	536			

a. R Squared = .113 (Adjusted R Squared = .101)



D. **H4**: Visitors are more likely to make a buying decision when the webshop scores higher on expressive aesthetic design.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	37.419[a]	12	.000
Likelihood Ratio	38.896	12	.000
Linear-by-Linear Association	18.598	1	.000
N of Valid Cases	537		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.73.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-c	.156	.035	4.454	.000
N of Valid Cases		537			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

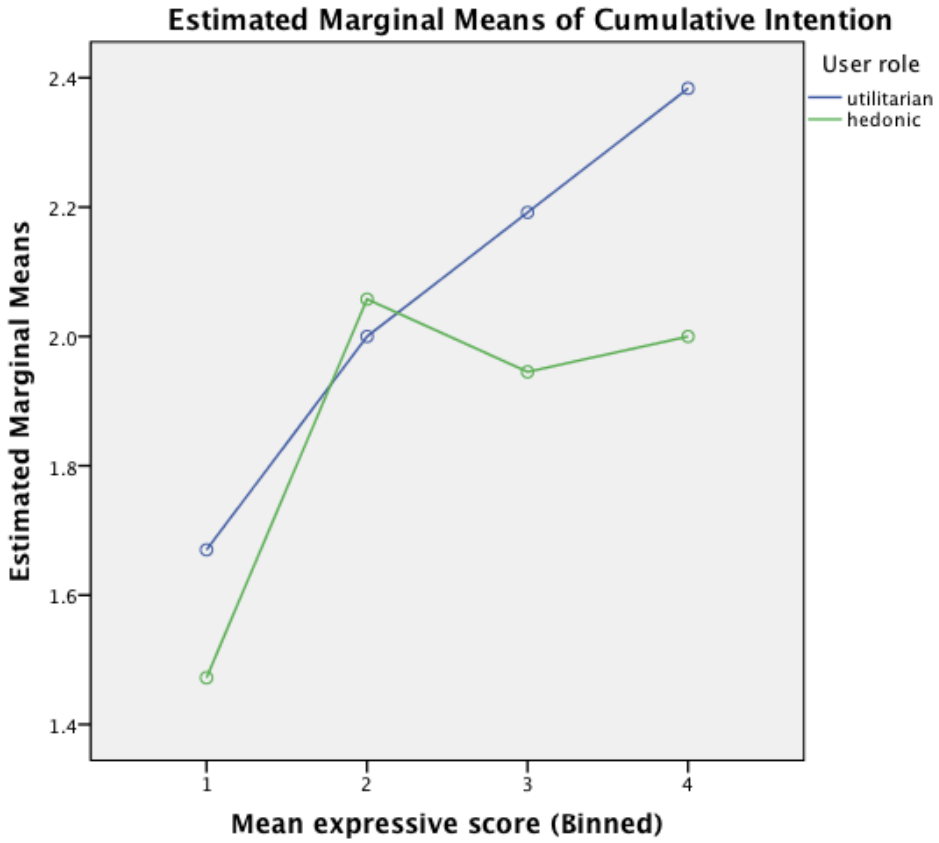
E. **H5**: The positive effect of expressive design of webshops on buying intentions is stronger for hedonic shoppers than for utilitarian shoppers.

Tests of Between-Subjects Effects

Dependent Variable: Cumulative Intention

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.863[a]	7	6.123	3.835	.000
Intercept	1965.043	1	1965.043	1230.812	.000
exp_score_binned	33.007	3	11.002	6.891	.000
Role	4.718	1	4.718	2.955	.086
exp_score_binned * Role	2.729	3	.910	.570	.635
Error	844.571	529	1.597		
Total	2921.000	537			
Corrected Total	887.434	536			

a. R Squared = .048 (Adjusted R Squared = .036)



VI. Recoded variables

Mean classic score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.25	2	.4	.4	.4
	1.50	10	1.9	1.9	2.2
	1.75	14	2.6	2.6	4.8
	2.00	29	5.4	5.4	10.2
	2.25	32	6.0	6.0	16.2
	2.50	43	8.0	8.0	24.2
	2.75	31	5.8	5.8	30.0
	3.00	60	11.2	11.2	41.2
	3.25	52	9.7	9.7	50.8
	3.50	66	12.3	12.3	63.1
	3.75	66	12.3	12.3	75.4
	4.00	50	9.3	9.3	84.7
	4.25	30	5.6	5.6	90.3
	4.50	36	6.7	6.7	97.0
	4.75	7	1.3	1.3	98.3
	5.00	9	1.7	1.7	100.0
	Total	537	100.0	100.0	

Mean expressive score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	.6	.6	.6
	1.25	8	1.5	1.5	2.0
	1.50	24	4.5	4.5	6.5
	1.75	29	5.4	5.4	11.9
	2.00	56	10.4	10.4	22.3
	2.25	49	9.1	9.1	31.5
	2.50	55	10.2	10.2	41.7
	2.75	46	8.6	8.6	50.3
	3.00	40	7.4	7.4	57.7
	3.25	62	11.5	11.5	69.3
	3.50	44	8.2	8.2	77.5
	3.75	45	8.4	8.4	85.8
	4.00	37	6.9	6.9	92.7
	4.25	14	2.6	2.6	95.3
	4.50	14	2.6	2.6	98.0
	4.75	6	1.1	1.1	99.1
	5.00	5	.9	.9	100.0
	Total	537	100.0	100.0	

Mean classic score (Binned)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	161	30.0	30.0	30.0
	2	112	20.9	20.9	50.8
	3	132	24.6	24.6	75.4
	4	132	24.6	24.6	100.0
	Total	537	100.0	100.0	

Mean expressive score (Binned)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	169	31.5	31.5	31.5
	2	101	18.8	18.8	50.3
	3	146	27.2	27.2	77.5
	4	121	22.5	22.5	100.0
	Total	537	100.0	100.0	

VII. Definitions

Webshops are defined as any online website or app that makes it possible to make purchases from a specific catalogue.

Visitors, **users** and **shoppers** in this paper all refer to people browsing to a webshop. These people can have different **motives** for browsing to a certain webshop. This can either be with a particular purchasing-task in mind, or without such a task, where a visitor would just happen to “pass” the webshop while browsing the Internet.

Buying intentions consist of both the intention to make a purchase at a webshop or to return at a later moment in time.

The definition of **aesthetics** adopted in this study is based on the terminology of Lavie and Tractinsky (2004) who suggested that aesthetics consist of two components “classical” and “expressive”. **Classic aesthetics** consist of the order, clearness and symmetry of an object, whereas **expressive aesthetics** consist of the hedonic quality of a website in terms of impressiveness, creativity and fascination. This definition is based on the literature study which can be found in Chapter 2.2.