I think I am “priced”:
The Effects of Dynamic Pricing on Emotions and Brand Evaluations

Name student: Kevin Bourgonje
Student number: s1580604
Supervisor name: 1st Mirjam Galetzka, 2nd Anna Fenko
Course name: MSc Thesis
MSc specialization: Marketing Communication
Hand-in date: February 9, 2015
Number of words: 12,465

UNIVERSITY OF TWENTE.
ABSTRACT

A growing amount of e-commerce businesses are using cookies to decide which price should be asked to consumers. This technique of following online consumers to boost revenue and profit is called dynamic pricing. With the help of newspapers and social media, (online) consumers are becoming more aware that dynamic pricing is used, although the effects of dynamic pricing on consumers thoughts or behaviour are not known yet. This study focuses on the effects of dynamic pricing, including the different price margins, on the emotions and thoughts people have, and to which brand evaluations that leads. What if consumers found out they have been “‘priced’”1 because of their personal interests, search histories, or other personalized data?

With the help of an experimental study (N=163), results indicated that valences of dynamic pricing do have an effect on the way how people feel, think and evaluate platforms and brands. Whereas higher prices enhanced a negative affect, and lower prices a positive affect. Increasing margins of price differences did not lead to different responses. The degree of brand loyalty did not moderate the effects on how people perceive the price to be fair, and how people evaluate brands. Furthermore, evidence was found that people also blame themselves for online price changes.

This study is relevant for marketers to increase insights in the effects of applying dynamic pricing strategies. E-business industry can make use of this “‘who to blame’” thought, and can try to remove their responsibility by, for example, adapting their communications, before more information about dynamic pricing strategies reaches the big crowd. For scientific research, this study offers insights in the way how people respond when personalized data is used for price setting.

Keywords: dynamic pricing, cookies, emotions, price fairness, and brand evaluations.

---

1 “‘Priced’” a term that is created in this study to display when an e-commerce company is setting the price, based on the online search behavior of consumers, with the help of cookies to boost revenue and profit.
# TABLE OF CONTENT

ABSTRACT .......................................................................................................................... 2

1 INTRODUCTION ............................................................................................................. 4

2 THEORATICAL FRAMEWORK ......................................................................................... 6
  2.1 Dynamic pricing: what, how, and why ................................................................. 6
  2.2 Valence of personal dynamic pricing ................................................................. 8
  2.3 Margin of price difference ................................................................................. 8
  2.4 Consumer responses to dynamic pricing ......................................................... 9
  2.5 Brand attitude ..................................................................................................... 12
  2.6 Brand loyalty ....................................................................................................... 13
  2.7 Conceptual framework ..................................................................................... 14

3 METHOD .......................................................................................................................... 15
  3.1 Pre-test ................................................................................................................... 15
  3.2 Stimulus material ............................................................................................... 16
  3.3 Measurements ...................................................................................................... 18
  3.4 Participants .......................................................................................................... 19
  3.5 Procedure ............................................................................................................. 20

4. RESULTS ......................................................................................................................... 21

5. CONCLUSIONS .............................................................................................................. 27

6. DISCUSSION .................................................................................................................. 29
  6.1 Limitations and future research ....................................................................... 31
  6.2 Practical implications ......................................................................................... 31

REFERENCES .................................................................................................................... 33

APPENDICES .................................................................................................................... 38
  A. Dynamic Pricing Questionnaire (English) ......................................................... 38
1 INTRODUCTION

"5th Mai 2015, I was looking on several web shops to order a new family board game to play with my friends. On Bol.com, similar to Amazon, I found an interesting game for a good price of €19.95. I decided to wait a few days, before actually buying the product. Two days later, I received an email from Bol.com, reminding me of the board game I recently checked on their website. The price increased with €4 to €23.95. I was shocked, and did not buy the product..."

Nowadays, in e-commerce, dynamic pricing is becoming more important and prominent for setting prices for (online) products and services (Kannan, Kopalle, & Praveen, 2014). According to Rouse (2014), dynamic pricing is a business strategy in which companies set highly flexible prices for services of consumer goods based on the demand on the market. Another description of this term is asking different prices for the same product (Trouborst, 2014). In business, dynamic pricing is often used in combination with yield management. According to Netessine and Shumsky (2002), yield management is a term that is used, primarily in service industries, for setting up a business strategy based on understanding, predicting, and influencing consumer behaviour to maximize the profits for a company. Furthermore, Netessine and Shumsky (2002) stated that yield management is an important innovation in the service industry. Where yield management is the more collective term for business, dynamic pricing is seen as one of the concepts/variables of yield management.

How does dynamic pricing work in practice? In e-commerce, web shops and service sellers are using HTTP cookies and thereby store information about surfing habits of online visitors (The Economist, 2012). These cookies, are built to carry information between users (browser) and the companies (servers) (Yue, Xie, & Wang, 2010). By doing this, the goal for e-commerce sites is to create persuasion profiles of visitors, based on facts and predictions, including personal data about, for example, their income, age, and surfing habits (Kaptein, 2014). Based on this, e-commerce sites estimate the persuasibility of visitors, and display products differently to different users. All with their own influence strategy, and therefore ask different prices (Kaptein, 2014).

According to an article from The Economist (2012), and more recently the German Huffington post (2015), some online sellers, such as Amazon in 2015, use the persuasion profiles to set the price, based on the type of the visitors’ computer or phone. They start from the idea that Apple-users are more rich than other brand-users. There are even examples of location based prices and, the most common one nowadays, setting prices by using the search history of consumers. These forms of price setting can be connected to a type of price
discrimination (Machlup, 1955). The increasing popularity of price discrimination means that software is only a matter of time before other applications come to market that help consumers to hide their online behaviour. On top of that, the Dutch government introduced a law in 2013 for protecting online consumers to the phenomenon of following consumers with cookies and thereby give them customized treatments. From that year, websites are obligated to ask visitors if it is allowed to place a cookie on the visitor’ computer. These cookies keep individual surfing habits, and inform profiles to allow targeted ads (www.Rijksoverheid.nl, 2013).

Already in the year 2000, a study by Zhao and Zheng (2000), concluded that there are many studies that are showing the impact of dynamic price policies on the revenues of companies. Over the years, dynamic pricing studies for business are done frequently, about why and how it works. Along with business, consumers are also becoming aware of dynamic pricing used by companies (Lifehacker, 2013). The effects of these dynamic pricing strategies on consumers thoughts, behaviour, or emotions are not known yet. This study can help marketers to increase insights in the effects of applying personal pricing strategies on consumers’ affective and cognitive responses.

For that reason, this study is focusing on the effects of dynamic pricing, including the different price margins, on the emotions people have, and to which brand evaluations that leads. What if consumers found out they have been ‘’ priced’’ because of their personal interests, search histories, or other personalized data? As stated before, since more online consumers are becoming aware that they are being watched, it is interesting to show the effect of this phenomenon. Therefore, this study will investigate to what extent the valence of dynamic pricing, and the margin of price difference, effect the affective and cognitive responses people have towards a brand.
2 THEORETICAL FRAMEWORK

In order to do research about how dynamic pricing is affecting people’s affective and cognitive responses, it is important to have a general description of dynamic pricing first (2.1). Since the term dynamic pricing is quite new, the aim is to look closely which types are already there, and use this information to make a (new) description which can be used for this research. Subsequently, each dependent and independent variable will be discussed in subparagraphs. First, the independent variables: valence of dynamic pricing (2.2) and margin of price difference (2.3), will be described. Secondly, the dependent variables will be defined.

Since dynamic pricing is a quite new business technique, no research has been done about how people respond to valences of dynamic pricing. In this study, two types of responses can be distinguished: a person’s first emotional response defined as affective response, and second, responses that requires more thinking, defined as cognitive responses (2.4). After this, people will evaluate what happened and form an opinion about the brand, defined as: brand attitude (2.5). Last, this study proposes that affective and cognitive responses towards dynamic pricing are moderated by the degree of brand loyalty (2.6).

2.1 Dynamic pricing: what, how, and why

In e-commerce, the persuasive technologies are defined as a system of changing behaviour of visitors (Fogg, 1999). Dynamic pricing, in combination with cookies, is an example of a persuasive technology (Kaptein, 2015). According to Kaptein and Halteren (2013), persuasive technologies are designed to influence (buying) behaviour with the goal of creating higher conversion rates. With the help of cookies, e-businesses are able to make profiles of visitors and then ask different prices to individuals. In literature, this way of price setting is known as giving your consumers ‘customized treatments’ (Kaptein, 2015).

To clarify how e-businesses is determining which person gets which ‘treatment’, Vijfhuizen (2015) distinguished four ways for businesses to determine the price: price setting based on competitors (1), demand and supply (2), demographics and behaviour (3), and based on consumers profiles (4). Looking to the content of this study, price setting based on demographics, behaviour, and consumers profiles are most connected to dynamic pricing with cookies (Abnett, 2015).

By applying dynamic pricing based on consumers’ demographics and behaviour (3), companies collect information about them in the orientation phase. An example, if the company knows that the consumer lives nearby, or visited a website of a competitor, lowering the price seems to be a good option. Dynamic pricing based on consumers profiles (4) is more complex,
it refers to a technique of collecting information to make profiles of consumers to set up the optimal price. In this case, predictions about consumers’ loyalty, and its sensitivity to price are made. Whereas price sensitivity is connected to the purchase history of a customer: is he or she always looking for the offers, or seems price not play a major role in buying?

Currently, the information e-commerce-businesses are getting via cookies, is very personal and detailed. For that reason, applying dynamic pricing, is a valuable strategy for e-commerce companies (Kaptein & Halteren, 2013). Kaptein (2014), claims that websites should handle the information with care, since it contains a lot of personalized data. Looking from a consumers perspective, being “priced” can raise ethical questions since individuals are being treated with different prices for the same product or service. In this case, a form of price discrimination comes up. Defining price discrimination will help to get an overall view of what dynamic pricing is and how it works, since both definitions are closely related.

**Price discrimination.** According to Machlup (1955), price discrimination is defined as the method of a company merchandising homogeneous goods or services at the same time, to different buyers, and ask different prices. If a company is selling a product or service which was meant to be the same product, but due quality differences asks different prices, it is not an example of price discrimination. While in the past companies used price discrimination in order to eliminate their competitors (Machlup, 1955), companies now use different price discrimination strategies to differentiate their online business to gain market share (Babin & Chung, 2015). Furthermore Babin and Chung (2015), stated that consumers commonly encounter web shops that are using arrays of price discrimination strategies. Machlup (1955), claims that there are three types of price discrimination strategies: personal price discrimination (1), group price discrimination (2), and product price discrimination (3). Looking more recently, articles from The Economist (2012), and Huffington post (2015) can confirm that personal price discrimination (1) and group price discrimination (2) are being used in combination with the recent trend: dynamic pricing with the help off cookies.

First, personal price discrimination makes differences between people as an individual and expose them to a customized treatment, only available for the person as an individual. As Machlup (1955) claimed, personal price discrimination is the only type that has an unsystematic form of price discrimination. Buyers do not have to be regular customers with a continuous demand, it is fluctuating. Nowadays, personal price discrimination is becoming more and more popular for online sellers in order to make more money on different moments of time (Abnett, 2015). Business are using this technique to size up the customers’ ability to pay, boost the
urgency and demand, and increase their own knowledge of the market (Machlup, 1995; The Economist, 2012; Huffington post, 2015).

Second, group price discrimination differentiates not between individual people, but differentiates between more individuals, categories of even classes of customers. Groups can be differentiated by demographics, psychological habits, and behavioural segmentation (Cui & Choudhury, 2015). Especially the behavioural segmentation is interesting for e-businesses, since marketers need this information to determine what the best price is for a group (or an individual) (Lei, Jia, & Wu, 2015).

In this study, the descriptions of personal and group price discrimination are combined and conceptualized as **personal dynamic pricing**. It refers to a persuasive technology based on following online consumers with the help of cookies, and give them customized treatments based on prices. From now on, in next sections, dynamic pricing is the same as personal dynamic pricing.

2.2 Valence of personal dynamic pricing

Companies can use two types of personal dynamic pricing: lower their prices or raise them (Vijfhuizen, 2015). In the condition of lowering the price, companies are trying to attract consumers to buy a product that they would otherwise not have bought, or they would have bought from a competitor. The effect of this type of dynamic pricing is to get higher turnover by lowering the price. In the other condition of raising prices, companies are trying to ensure a higher margin on their products. This study makes a distinction between two valences, negative dynamic pricing (NDP) is used for referring to raising the price, and positive dynamic pricing (PDP) refers to lowering the price for the customer.

Currently, companies increase prices if it is expected that consumers are willing to pay a higher price. However, if prices change several times a day, especially with the help of cookies, the resistance among consumers is rising. Another reason for raising prices can be that competitors have raised prices too. In practice, most companies raise their price, and not lower them. According to Lichtenstein et al., (1993), the price represents the amount of money that consumers have to pay. Therefore, higher prices affect consumers’ responses negatively, whereas lowering the price will affect the responses positively (Lichtenstein et al., 1993).

2.3 Margin of price difference

In this study, the margin of price difference is operationalized as the difference between the old price (before dynamic pricing) and the original price (after dynamic pricing). The chance for a price change to be noticed is higher when the new price is above the threshold of 20 percent
This ‘thumb rule’ declares that a price should be marked down, or up, at least by 20 percent for consumers to be noticed. That does not alter that consumers will not notice a price change less than 20 percent. DelVecchio, Henard, and Freling (2006) stated that if the price is above this threshold level, it will have an (higher) effect on people’s affective and cognitive responses.

The purpose of this study is to examine how people respond if the found out they have been priced. Therefore, it is needed to tell people that the price is changed. The ‘‘threshold’’ level is only used to decide which margin should be used, and does not refer to the original purpose of the threshold level, as explained in Webers Law (Monroe, 1973). In order to find out if the margin of price difference provoke stronger affects, this study distinguishes two types of price differences: one price change below 20 percent, and one above.

2.4 Consumer responses to dynamic pricing

Before defining affective and cognitive responses, it is needed to declare what the differences are, and how both responses are also connected to each other. According to Trandafilović et al., (2013), affective responses are defined as a person’ present emotional state, provoked by an external event. Affective responses are characterized as making a judgement about an event, in this study dynamic pricing, without giving much thought about it. On the other hand, cognitive responses are linked to the rational thinking of people about experiences or situations. Cognitive responses refer to a longer period of judging and making conclusion about an event (Trandafilović et al., 2013). According to Duncan and Barret (2007), in modern psychology, cognitive responses are considered as a part of affective, and conversely, affective response is also part of the cognitive response.

From a practical perspective, individuals are reacting differently to the use of persuasive technologies, to which a dynamic pricing strategy belong (Kaptein, Markopoulos, Ruyter, & Aart, 2009). While applying dynamic pricing in combination with cookies, it is essential for businesses to not forget the individual differences people have (Kaptein and Halteren, 2013). Especially if price information is given, individual differences plays an important role on people’ affective reactions and their behavioural responses (Peine, Wentzel, & Herrmann, 2010).

2.4.1 Affective response. As stated before, in practice, most companies raise their price, and not lower them. For consumers, raising prices, can be seen as something negative\(^2\), whereas

\(^2\) Negative dynamic pricing (NDP): Persuasion technique of increasing the price for consumers which is labeled as something negative.
lowering prices is seen as something positive\(^3\) (Lichtenstein et al., 1993). Research provided much information on the negative emotions that consumers experience in relation to a specific company or brand. Many studies described emotional experience and have tried to give better predictions of when the specific emotion occurs (Russell & Pratt, 1980). Researchers agree to the fact that emotions play a role in the buying behaviour of consumers.

According to Diener et al., (1985), there are two basic emotional responses: negative affect versus positive affect. After dynamic pricing is applied, a person will experience either a negative affect or a positive affect. A study by O’Neill and Lambert in 2001, concluded that these price affects play an important role in the price perceptions of consumers, and thus their emotions. The Appraisal Theory posits that consumers will get positive emotions when the price is beneficial for them, and negative emotions will arise when the price is going into the wrong direction (Peine et al., 2010). Furthermore, as the Appraisal Theory of Emotion declares, in the primary appraisal people consider to what extent the situation affected their personal well-being expressed in emotions. In the secondary appraisal, people are determining how to cope with the situation (Lazarus, 1991).

Based on literature, the appraisal theory, and the description of dynamic pricing, it seems likely that raising the price causes more negative affects towards the company, whereas lowering prices will evoke positive affects (Lichtenstein et al., 1993). Therefore, the following hypotheses is proposed:

H1A: Negative dynamic pricing will induce more negative emotions compared to positive dynamic pricing.

H1B: Positive dynamic pricing will induce more positive emotions compared to negative dynamic pricing.

Furthermore, as stated paragraph 2.3, the margin of price difference is operationalized as the difference between the old price (before dynamic pricing) and after dynamic pricing. Based on the previously mentioned ‘’threshold level’’, it could be assumed that a high price difference (>20%), positively or negatively, will provoke stronger affective responses towards a brand, as when the price difference is smaller (<20%):

---

\(^{3}\) Positive dynamic pricing (PDP): Persuasion technique of lowering the price for consumers which is labeled as something positive.
H1C: The effect of both, PDP and NDP, on people’ affective responses are more pronounced when higher margins of price differences are used, then when lower margins are used.

2.4.2 Cognitive response. In this study, a cognitive response is the way how people respond after being exposed to a valence of dynamic pricing. This cognitive process of consumers, of having a positive or negative emotional state, will affect the way consumers evaluate the brand subsequently (Peine, Wentzel, & Herrmann, 2010). A study by Ethiera et al., in 2005 concluded that the quality of a website will have an impact on the cognitive appraisal of consumers, which in turn influence people’ attitudes. Dynamic pricing in combination with cookies, can be linked to the quality of a website. Trust, and thus integrity, is a factor of people’ quality perception of online web shops.

In this case, when dynamic pricing is applied, consumers feel threatened as a result of limited choice freedom. As a result of this, people will have reactions towards the perceived price unfairness (Kampmann, 2010). Price fairness is defined as the judgement of consumers about the companies’ price (Haws & Bearden, 2006). Price fairness is related to a reference price, which is the price consumers can remember via previous transactions and market prices. The current price should be equal to the price that consumers expect, in order to have perceived price fairness (Gielissen et al., 2008).

Assuming that using personal search history to set up prices is perceived as unethical and not fair, negative dynamic pricing probably affect the score on price fairness negatively. Furthermore, despite positive dynamic pricing is positive for customers, people can perceive this still as unfair towards other people. Also the reference price of consumers is changed. Although, it is expected that positive dynamic pricing will have positive affects on how people perceive the price fairness.

H2A: Negative dynamic pricing will affect the perceived price fairness more negative compared to positive dynamic pricing.

H2B: Positive dynamic pricing will affect the perceived price fairness more positive compared to negative dynamic pricing.

Furthermore, this study proposes that increasing the margin of price difference, will affect the score on perceived price fairness more strongly, compared to a lower margin of price difference (Gielissen et al., 2008; Peine, Wentzel, & Herrmann, 2010)
H2C: The effect of both, PDP and NDP, on people’s cognitive responses are more pronounced when higher margins of price differences are used, then when lower margins are used.

2.5 Brand attitude

Positive emotions are more connected to attitudes that have the tendency to come closer to a brand, or to be activated to do something which is positive for the brand. Conversely, the negative emotions are correlated with avoiding a brand (Peine, Heitmann, & Hermann, 2009). After a affective response, people will use their first primary cognition to make a more evaluative response towards a brand. In this study, that response is operationalized as brand attitude, which refers to the internal evaluation of an individual towards the brand (Mitchell & Olson, 2000). Continuing on this, Spears and Singh (2004) stated that brand attitude is used to indicate the strength of a positive or negative valence of an experience towards an object. Furthermore, an attitude has a evaluative structure, and presumably influence people’s behaviour.

The appraisal theory helps to understand people’s responses to price changes. As the theory suggest, from a consumer’s perspective, raising prices will amplify a negative affect and thus negative attitudes. And controversially, lowering prices engender a positive effect, an thus positive attitudes (Peine et al., (2010). Where people’s emotions or feelings are mostly transitory, people’s attitudes are relatively enduring (Ray, 1986). Thus, in this study, attitude towards the brand is conceptualized as an internal evaluation of the brand, which can be positive or negative. Furthermore, this evaluative process occur after people’s affective and cognitive response (Peine, Wentzel, & Herrmann, 2010).

In practice, mostly online warehouses, and thus resellers of many brands, are using persuasion profiles to set prices. These platforms are selling many categories of products of different brands. A study by Hegner, Kusse, and Pruyn in 2014, concluded that if people are exposed to an advertisement before they can watch a video on YouTube, people will blame YouTube for it, and not the advertiser. In this setting, people are blaming the platform (YouTube) and not the brand that was displayed in the video. This study is also dealing with platforms (e.g. Wehkamp.nl) and with brands (e.g. Apple). Therefore the following hypothesis is formulated:

H3A: Negative dynamic pricing will induce more negative brand attitudes to both, platform and brand, compared to positive dynamic pricing.
H3B: Positive dynamic pricing will induce more positive brand attitudes to both, platform and brand, compared to negative dynamic pricing.

H3C: A valence of dynamic pricing has a more negative effect on the brand attitude towards the platform, compared to the brand attitude towards product brand.

Last, although it is expected that people will blame the platform more strongly compared to the brand of the product. It could be that if the price difference is of a higher margin, people will blame, or glorify, the platform and brand differently, in comparison with a lower price difference.

H3D: The effect of both, PDP and NDP, on people’s brand attitude towards platforms are more pronounced when higher margins of price differences are used, then when lower margins are used.

H3E: The effect of both, PDP and NDP, on people’s brand attitude towards brands are more pronounced when higher margins of price differences are used, then when lower margins are used.

2.6 Brand loyalty

In literature, brand loyalty occurs when consumers are choosing to purchase a product by the same brand repeatedly, instead of buying it from another brand (Gremler & Brown, 1996). To give an example, think off Apple-phone-users versus the Samsung-phone-users. Brand loyalty often goes with people’s perceptions. Consumers will consistently buy the same product if he or she perceives the product as being superior among the other products (Grimsley, 2013). Furthermore, Keller (1993) claims that brand loyalty is linked to the top-of-mind awareness of consumers.

Controversially with the offline world, in online shopping brand loyalty has taken a new dimension. Traditional brands have enjoyed a long period of immunity for price competition and thus switching brands (Dowling & Uncles, 1997). However, in today’s online shopping, it is easy for consumers to check prices and switch the competitor. Since there are so many choice opportunities online, it is harder for consumers to make decisions more easily. Therefore, price seems to be more important for people’s perceptions about brand loyalty (Reichheld & Schefter, 2000). As Reichheld and Schefter (2000) claim, being competitive with price, is becoming more important for online businesses in creating brand loyalty. This study defines two degrees of brand loyalty: the brand ‘lovers’ and the brand ‘haters’. For that reason, it is interesting to
look to what extent the concept of ‘brand loyalty’ moderates people’s affective and cognitive emotions and their brand attitudes. The following hypothesis is proposed:

The degree of brand loyalty will moderate the effect on consumers’ affective responses (H4A), cognitive responses (H4B), brand attitude towards the platform (H4C), and the brand attitude towards the brand (H4D). That is, from a business perspective, brand lovers have less negative responses compared to brand haters.

Furthermore, this study hypothesizes that being a brand lover, will result to less negative responses:

H5A: Brand lovers experience less negative emotions, compared to brand haters
H5B: Brand lovers perceive the price more fair compared to brand haters.
H5C: Brand lovers evaluate the platform better compared to brand haters
H5D: Brand lovers evaluate the brand better compared to brand haters

2.7 Conceptual framework

This study proposes that the valences of dynamic pricing, in both negative and positive, and the margin of price difference, will affect people’s affective responses and their brand attitudes. The degree of brand loyalty, is suggested to be the study’s moderator. In Figure 1, the designed research model is presented, including the different constructs, their relationships and the hypotheses.

*Figure 1: Conceptual model: valence of dynamic pricing and margin of price difference affecting people’s affective and cognitive responses and brand attitudes. Moderated by brand loyalty.*
3 METHOD

In this research, an experimental design between subjects (2x2x2) was conducted to test the formulated hypotheses. In relation the margin of price difference, the main focus of the research was to find out whether negative dynamic pricing, and positive dynamic pricing, affect the affective and cognitive responses people have towards a brand. This study hypothesized that valences of dynamic pricing, and the margin of price difference is moderated by the degree of brand loyalty. Based on a pre-test (3.1), stimulus material (3.2) was conducted in order to have a valid questionnaire. Furthermore, measurements of the variables will be described (3.3), followed by the participants (3.4). This method section will end with the study’ procedure (3.5).

3.1 Pre-test

In order to have a realistic, and valid questionnaire, pre-interviews were held to gather general thoughts and opinions about dynamic pricing. It gives this study a practical view into the theme ‘‘dynamic pricing’’ without being limited to the theoretical framework. All outcomes were transcribed and summarized into thought units. Since dynamic pricing was linked to online shopping, only Dutch people who shop online were recruited for the pre-test. In total 11 respondents participated in the pre-test interviews, 6 men and 5 females in the age range between 18 and 58 years (M = 34, SD = 13.69).

Pre-test participants were asked if they ever heard about dynamic pricing, and if not, the term ‘‘changing prices’’ was used. All participants were aware of the fact that prices change in online settings (N=11). When participants were asked about dynamic pricing in combination with cookies, N =8 confirmed a situation in which participants thought cookies were used for price setting. Most participants (N =7) experienced a situation in which prices changed while searching for hotels and flights. From those who experienced price changes in travel industry, N=5 experienced a situation in which the price changed based on people’ geographical location, search history, and medium use (Samsung versus Apple-computer).

When participants were asked how the pricing affected their feelings, most concluded that they could have avoided the situation, by buying the product directly at the first time of searching. In this case, participants blamed themselves for the changed price. In the situation of price setting based on personal people’ graphical location, search history or medium use, participants felt betrayed (N =2), being watched (N =2), and angry (N =2). As a result of this, it could be assumed that dynamic pricing, in combination with cookies, can be linked to certain emotions. Based on the interviews it became apparent that participants know that prices change online. Although participants were familiar with changing prices, only a few confirmed a
situation in which cookies were used for setting prices. Participants were sensitive for price changes based on their geographical location, search history, and medium use. Based on this, manipulated scenarios were conducted that clearly describes how the website used cookies in order to set up the price. Furthermore, for respondents it should be clear that price changes is not their own fault, but it is the result of the seller’ strategy.

3.2 Stimulus material

Citation. Based on the pre-test, evidence was found that not all people were acquainted with information about dynamic pricing methods in combination with cookies. Therefore, people needed to be informed about dynamic pricing methods, in order to be able to answer questions about their emotions, or attitudes. An intro text of the Dutch Consumers’ Association was used to inform people about dynamic pricing. “’Nu.nl’ a famous Dutch new-site, was used as the sender of the information (see Figure 1 & 2). The text highlighted that big online warehouses are using cookies to set up different prices to individuals, based on analysing search and click behaviour of online consumers. Furthermore, the text clarifies that being ‘’priced’’ is a result of the seller’ strategy. The information given was specially made for this questionnaire, including all important aspects respondents needed to know about dynamic pricing. For each condition, the same information was given.

Figure 1 & 2: Dutch and English Text of the Dutch Consumers’ Association (NU.nl)

Scenarios. A scenario study was conducted in which the valence of dynamic pricing, and the margin of price difference was manipulated. In all four scenarios, participants were exposed to a situation in which an Apple IPhone 6 was displayed. In two conditions the price went up: from €630 to €638, and from €630 to 756. In the other two conditions the price went down: from €630 to €622, and from €630 to 504.

An instructional text was added asking participants to imagine themselves buying this
product from their most favorite brand “Apple”, and copy the sketched situation on themselves. By saying: “A week ago, you were looking for this product to buy on Wehkamp.nl. You decided to wait a few days, before actually buying the product”, it was clear that in a time frame of one week Wehkamp.nl changed the price of the IPhone. Then the text implies a situation in which the participant decides to buy the IPhone 6 on Wehkamp.nl at this moment. The description of the scenario points out that the price went up or down, based on people’s search and click behaviour of last week. Furthermore the text implies that the asking price only goes for “you” as an individual.

The biggest Dutch online warehouse “Wehkamp.nl” was used as the platform from which people were looking for their Apple IPhone 6. Wehkamp.nl was chosen because of its size, and most Dutch online shoppers will know Wehkamp.nl as a platform. The product chosen, an IPhone 6, had to be relevant for the study and to the participants. IPhones are classified as high involvement goods, and buyers will probably gather information before buying the product. Another consideration was that fact Apple has brand lovers an brand haters, in order to measure the moderated effect of brand loyalty.

Figure 3: Overview different scenarios, including valences in dynamic pricing and price margins
3.3 Measurements

Affective responses ($\alpha = .83$). Over the years, a large number of research methods have been applied to measure people’ affective responses. In this study, an affective response is linked to an emotion. For measuring emotions, self-report questionnaires are commonly used because of their ability to discriminate between different types of emotions (Laurans & Desmet, 2012). In a study from Laurans and Desmet (2012), PrEmo 2 was used to measure people’ emotions based on the user experience. This emotional measurement scale can be used to compare different product technologies, and helps to define user experiences for future products (Desmet & Schifferstein, 2012). A scale can be used to measure emotional fluctuations throughout a special time frame (Gellman & Turner, 2013). For that reason, this scale was best suited since in the scenarios respondents were exposed to a time frame of one week.

As a result of the pre-test, it was confirmed that applying dynamic pricing is sensitive for people’ emotions. According to Laurans and Desmet (2012) the PrEmo 2 is especially useful when a situation elicits high levels of sensitivity. Furthermore, this scale allows participants to discriminate different types of negative and positive affects. For this study, participants were asked to indicate to what extent they feel certain emotions on a 7-point Likert-scale. Based on the PrEmo 2 scale, the following emotions in words were used to measure people’ affective response: satisfaction, disgust, joy, contempt, fascination, dissatisfaction, admiration, boredom, attraction, shame, pride, fear hope, and sadness. In addition, emotions were analysed separately.

Cognitive response / perceived price fairness ($\alpha = .74$). The perceived price fairness is one of the first indicators of a consumer’ price cognition. Since this study is about fluctuating prices, and price discrimination seems to occur, a three item scale about perceived price fairness was added. In a study from Grewal, Hardesty, and Iyer (2004), this scale was used in an online setting with a high reliability. The items read: "The price for the IPhone 6 you are charged for represents a fair price.", "How fair is the price you have to pay for the IPhone 6?", and "The online consumers are treated fairly?". The items were rated on a 7-point Likert scale ranging from strongly agree to strongly disagree.

Brand attitude (Wehkamp: $\alpha = .95$, and Apple: $\alpha = .94$). For measuring brand attitude it was important to use a scale that could measure brand attitude towards the website (platform), and towards the brand (Apple). Existing an validated semantic scales, as used in a study from Sicilia et al., (2005), are used to measure brand attitude, to both, the platform and the brand. The items read: “positive/negative”, “good/bad”, “favorable/unfavorable”, “like it/I do not like it”,

18
'agreeable/disagreeable’” and ‘‘attractive/unattractive’’. All items were measured on a 7-point scale. The item ‘‘honest/not honest’” was added since dynamic pricing could raise ethical beliefs.

**Brand loyalty (α = .96).** According to Yooa and Donthub (2001) and Keller (1993) brand loyalty is one of the four dimensions of brand equity. According to Chaudhuri & Holbrook (2001), brand loyalty is directly related to the price, and therefore, the ‘price’ item needs to be included in this study’ scale. A Likert scale from 1 to 7 was used to measure the brand loyalty with the anchors of strongly disagree (1), to strongly agree (7). For developing brand loyalty items, two empirical studies from Yooa & Donthub (2001), and Lee & Leh (2011) were as a reference. The items read "I consider myself to be loyal to Apple (IPhone)", "An IPhone would be my first choice", ‘‘I will not buy other brands if IPhone is available at the store, and “I will buy an IPhone in the future even if competitive phone brands offer cheaper prices’”.

3.4 Participants

As the basis of this study concerns online buyers, the most interesting population for this study was the Dutch population. According to Statistic Netherlands, in Dutch: Centraal Bureau voor Statistiek (CBS), 85 percent of the Dutch population between the age 12 and 75, indicated that they shop online (CBS, 2013). To prevent the results of biases, only Dutch online shoppers were questioned in the age range from 12 to 75 years. Respondents were recruited via Facebook, LinkedIn, and emails. One hundred and sixty two people filled out the survey completely. Participants were triggered to participate by saying that the questionnaire was instructive, and could give people insights in the use of cookies. Furthermore, it ensured that respondents read the questionnaire attentively, which was important for this study. In total 93 females (57.4%) and 69 (42.6%) males participated. All participants were Dutch, or foreigners with the Dutch language on native level. Most participants were in the age range from 15 to 24 years (56.8%), followed by 25 to 34 years (26.5%). From all participants, 99.4% buys products or services online at least on a ‘‘rarely’’ base. Most participants indicated that they shop online ‘‘sometimes’’ (33.3%) or ‘‘often’’ (54.5%). In Table 1, an overview can be found displaying the amount of participants for each condition.

---

4 N=184 participants answered the questions up to, and including, their brand attitude. From those N=162 participants filled out the questionnaire completely.
Table 1: Amount of participants in each condition separately

<table>
<thead>
<tr>
<th>Condition</th>
<th>Participants each condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive dynamic pricing, low margin of price difference</td>
<td>45</td>
</tr>
<tr>
<td>Positive dynamic pricing, high margin of price difference</td>
<td>48</td>
</tr>
<tr>
<td>Negative dynamic pricing, low margin of price difference</td>
<td>48</td>
</tr>
<tr>
<td>Negative dynamic pricing, high margin of price difference</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>184</td>
</tr>
</tbody>
</table>

3.5 Procedure

Participants were exposed to an introduction text first, in which people were shortly instructed to read all questions attentively. To measure the moderating effect of brand loyalty, the first question was about people’ loyalty towards Apple. Then, participants were exposed to a citation of the Dutch Consumers’ Association, highlighting that big online warehouses are using cookies to set up different prices to individuals. After the citation, people were randomly assigned to one of the four types of dynamic pricing scenarios, in which the price was manipulated. Subsequently, a matrix with emotions was shown in which participants were asked to indicate to what extent they feel these emotions right now. Next, questions about how people evaluate the platform (Wehkamp.nl) and the brand (Apple) were presented. The questionnaire ended with general questions about dynamic pricing and its perceived price fairness, followed by basic demographics. Qualtrics software was used to build the questionnaire, and for gathering data. SPSS (version 22) was used to analyse the data.
4. RESULTS

**Affective responses.** A factorial analysis between two factors of variance (ANOVA) was used to compare people’ scores on affective responses within the four conditions: a valence of dynamic pricing (positive, negative) and a margin of price difference (high, low). A third factor, the degree of brand loyalty, was added to compare the scores between brand ‘’lovers’’ and the brand ‘’haters’’. Shapiro Wilk and Levene’s tests were used to evaluate the assumptions of normality and homogeneity of variance respectively. Although Shapiro Wilk was violated, ANOVA is not sensitive to violations of the equal variances assumption when samples are moderate to large and approximately equally sized (Bennet & Allen, 2012).

The main effect of valence of dynamic pricing on people’ affective responses was significant, $F (1,176) = 67.33$, $p = <0.01$, with participants exposed to positive dynamic pricing experienced more positive emotions ($M = 0.66$, $SD = 0.13$) compared to participants exposed to negative dynamic pricing ($M = 0.50$, $SD = 0.12$). See Table 1 for the means and standard deviations in all conditions.

The main effect of valence of dynamic pricing on the emotions separately was significant for: contempt $F (1,182) = 22.27$, $p = <0.01$, satisfaction $F (1,182) = 66.38$, $p = <0.01$, joy $F (1,182) = 68.27$, $p = <0.01$, admiration $F (1,182) = 5.67$, $p = .018$, attraction $F (1,182) = 42.01$, $p = <0.01$, pride $F (1,182) = 5.85$, $p = .017$, hope $F (1,182) = 14.63$, $p = <0.01$, disgust $F (1,182) = 39.23$, $p = <0.01$, sadness $F (1,182) = 22.90$, $p = <0.01$, and dissatisfaction $F (1,182) = 65.97$, $p = <0.01$.

The main effect of valence of dynamic pricing on the emotions separately was not significant for: fascination $F (1,182) = 2.62$, $p = .107$, boredom $F (1,182) = .65$, $p = .423$, shame $F (1,182) = 1.34$, $p = .249$, and sadness $F (1,182) = 22.90$, $p = .753$.

No main effect was found between the margin of price difference and people’ affective responses $F (1,176) = 1.72$, $p = .395$. That means, no statistical evidence is found that participants exposed to a low margin of price difference ($M = 0.59$, $SD = 0.14$), have less negative affective responses, compared to participants with a high margin of price difference ($M = 0.58$, $SD = 0.16$).

There was no interaction between valence of dynamic pricing and margin of price difference, $F (1,176) = 1.48$, $p = .230$. 


Table 1: Means and standard deviations of affective response in four types of dynamic pricing

<table>
<thead>
<tr>
<th>Condition</th>
<th>Low price margin</th>
<th>High price margin</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Negative DP</td>
<td>0.53</td>
<td>0.13</td>
<td>0.49</td>
</tr>
<tr>
<td>Positive DP</td>
<td>0.66</td>
<td>0.13</td>
<td>0.67</td>
</tr>
<tr>
<td>Total</td>
<td>0.59</td>
<td>0.15</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Furthermore, looking to the factor brand loyalty, no significant effect was found when comparing people’ affective responses between brand haters and lovers $F(1,176) = .263, p = .609$. That means, no statistical evidence is found that participants with a high degree of brand loyalty ‘‘lovers’’ ($M = 0.59, SD = 0.15$), have less negative affective responses, compared to participants with a low level of brand loyalty ‘‘haters’’ ($M=0.58, SD = 0.16$). (See Table 2).

There was no interaction between valence of dynamic pricing, margin of price difference, and the degree of brand loyalty $F(1,176) = 1.35, p = .557$.

Table 2: Means and standard deviations of affective response between brand lovers and brand haters

<table>
<thead>
<tr>
<th>Condition</th>
<th>Brand haters</th>
<th>Brand Lovers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Affective response</td>
<td>0.58</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Cognitive responses. A factorial analysis between two factors of variance (ANOVA) was used to compare people’ scores on cognitive responses within the four conditions: a valence of dynamic pricing (positive, negative) and a margin of price difference (high, low). A third factor, the degree of brand loyalty, was added to compare the scores between brand ‘‘lovers’’ and the brand ‘‘haters’’. Shapiro Wilk and Levene’s tests were used to evaluate the assumptions of normality and homogeneity of variance respectively. Although Shapiro Wilk was violated, ANOVA is not sensitive to violations of the equal variances assumption when samples are moderate to large and approximately equally sized (Bennet & Allen, 2012).

The main effect of valence of dynamic pricing on people’ perceived price fairness was

---

The mean scores for all variables are divided by total score, to make sure all means are in the range from 0 up to 1.
significant, $F(1,156) = 40.43, p < 0.01$, with participants exposed to positive dynamic pricing experienced a higher price fairness ($M = 0.50, SD = 0.17$) compared to participants exposed to negative dynamic pricing ($M = 0.33, SD = 0.16$). See Table 3 for the means and standard deviations in all conditions.

No main effect was found between the margin of price difference and people’s perceived price fairness $F(1,156) = .33, p = .567$. That means, no statistical evidence is found that participants exposed to a low margin of price difference ($M = 0.42, SD = 0.19$), perceive the price more fair, compared to participants with a high margin of price difference ($M = 0.42, SD = 0.19$).

There was no interaction between valence of dynamic pricing and margin of price difference, $F(1,156) = .27, p = .607$.

Table 3: Means and standard deviations of cognitive response (price fairness) in four types of dynamic pricing

<table>
<thead>
<tr>
<th>Condition</th>
<th>Low price margin</th>
<th>High price margin</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Negative DP</td>
<td>0.33</td>
<td>0.16</td>
<td>0.33</td>
</tr>
<tr>
<td>Positive DP</td>
<td>0.52</td>
<td>0.17</td>
<td>0.49</td>
</tr>
<tr>
<td>Total</td>
<td>0.42</td>
<td>0.19</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Furthermore, looking to the factor brand loyalty, no significant effect was found when comparing people’s cognitive response between brand haters and lovers $F(1,156) = 2.07, p = .152$. That means, no statistical evidence is found that participants with a high degree of brand loyalty “lovers” ($M= 0.45, SD = 0.19$), perceive the price more fair, compared to participants with a low level of brand loyalty “haters” ($M=0.38, SD = 0.18$). (See Table 4).

There was no interaction between valence of dynamic pricing, margin of price difference, and the degree of brand loyalty $F(1,156) = 3.32, p = .070$.

Table 4: Means and standard deviations of cognitive response between brand lovers and brand haters

<table>
<thead>
<tr>
<th>Condition</th>
<th>Brand haters</th>
<th>Brand Lovers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Cognitive response</td>
<td>0.38</td>
<td>0.18</td>
</tr>
</tbody>
</table>
**Brand attitude.** A factorial analysis between two factors of variance (ANOVA) was used to compare people’ brand attitudes within the four conditions. Brand attitudes were measured towards the platform (Wehkamp.nl) and the brand (Apple). A third factor, the degree of brand loyalty, was added to compare the scores between brand ‘lovers’ and the brand ‘haters’. Shapiro Wilk and Levene’s tests were used to evaluate the assumptions of normality and homogeneity of variance respectively. Although Shapiro Wilk was violated, ANOVA is not sensitive to violations of the equal variances assumption when samples are moderate to large and approximately equally sized (Bennet & Allen, 2012).

**Brand attitude towards the platform.** The main effect of valence of dynamic pricing on people’ brand attitudes towards the platform was significant, $F (1,166) = 155.470, p < 0.01$, with participants exposed to positive dynamic pricing experienced more positive brand attitudes ($M = 0.61, SD = 0.18$) compared to participants exposed to negative dynamic pricing ($M = 0.30, SD = 0.14$). See Table 5 for the means and standard deviations in all conditions.

No main effect was found between the margin of price difference and people’ brand attitudes towards the platform $F (1,166) = 2.80, p = .096$. That means, no statistical evidence is found that participants exposed to a low margin of price difference ($M = 0.47, SD = 0.22$), have more positive brand attitudes, compared to participants with a high margin of price difference ($M = 0.44, SD = 0.23$).

There was no interaction between valence of dynamic pricing and margin of price difference, $F (1,166) = .041, p = .840$.

**Table 5: Means and standard deviations of brand attitudes platform in four types of dynamic pricing**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Low price margin</th>
<th>High price margin</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Negative DP</td>
<td>0.32</td>
<td>0.14</td>
<td>0.28</td>
</tr>
<tr>
<td>Positive DP</td>
<td>0.63</td>
<td>0.17</td>
<td>0.59</td>
</tr>
<tr>
<td>Total</td>
<td>0.47</td>
<td>0.22</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Furthermore, looking to the factor brand loyalty, no significant effect was found when comparing people’ brand attitudes towards the platform between brand haters and lovers $F (1,166) = .089, p = .766$. That means, no statistical evidence is found that participants with a
A high degree of brand loyalty ‘‘lovers’’ ($M=0.47, SD = 0.21$), have more positive brand attitudes towards the platform, compared to participants with a low level of brand loyalty ‘‘haters’’ ($M=0.44, SD = 0.23$). (See Table 6).

There was no interaction between valence of dynamic pricing, margin of price difference, and the degree of brand loyalty $F (1,166) = 0.30, p = .587$.

Table 6: Means and standard deviations of brand attitude towards the platform between brand lovers and brand haters

<table>
<thead>
<tr>
<th>Condition</th>
<th>Brand haters</th>
<th>Brand Lovers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand attitude platform</td>
<td>$M = 0.44$</td>
<td>$M = 0.47$</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.23$</td>
<td>$SD = 0.21$</td>
</tr>
</tbody>
</table>

**Brand attitude towards the brand.** The main effect of valence of dynamic pricing on people’s brand attitudes towards the brand was significant, $F (1,166) = 8.82, p = 0.03$, with participants exposed to positive dynamic pricing experienced more positive brand attitudes ($M = 0.71, SD = 0.17$) compared to participants exposed to negative dynamic pricing ($M = 0.61, SD = 0.20$). See Table 7 for the means and standard deviations in all conditions.

No main effect was found between the margin of price difference and people’s brand attitudes towards the brand $F (1,166) = .69, p = .406$. That means, no statistical evidence is found that participants exposed to a low margin of price difference ($M = 0.67, SD = 0.18$), have different brand attitudes, compared to participants with a high margin of price difference ($M = 0.65, SD = 0.20$).

There was no interaction between valence of dynamic pricing and margin of price difference, $F (1,166) = .480, p = .489$.

Table 7: Means and standard deviations of brand attitudes brand in four types of dynamic pricing

<table>
<thead>
<tr>
<th>Condition</th>
<th>Low price margin</th>
<th>High price margin</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Negative DP</td>
<td>0.61</td>
<td>0.19</td>
<td>0.61</td>
</tr>
<tr>
<td>Positive DP</td>
<td>0.72</td>
<td>0.16</td>
<td>0.69</td>
</tr>
<tr>
<td>Total</td>
<td>0.67</td>
<td>0.18</td>
<td>0.65</td>
</tr>
</tbody>
</table>
Furthermore, looking to the factor brand loyalty, a significant effect was found when comparing people’ brand attitude towards the brand between brand haters and lovers $F(1,166) = 25.37, p = <0.01$. That means, statistical evidence is found that participants with a high degree of brand loyalty ‘‘lovers’’ ($M=0.47, SD =0.21$), have more positive brand attitudes towards the brand, compared to participants with a low level of brand loyalty ‘‘haters’’ ($M=0.44, SD =0.23$). (See Table 8).

There was no interaction between valence of dynamic pricing, margin of price difference, and the degree of brand loyalty $F(1,166) = 2.19, p = .140$.

Table 8: Means and standard deviations of brand attitude towards the brand between brand lovers and brand haters

<table>
<thead>
<tr>
<th>Condition</th>
<th>Brand haters</th>
<th>Brand Lovers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand attitude brand</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td></td>
<td>0.58</td>
<td>0.18</td>
</tr>
</tbody>
</table>
5. CONCLUSIONS

The main focus of this study was to determine to what extent the valence of dynamic pricing, and the margin of price difference, affect the emotions and evaluations people have towards a brand. To examine the link between dynamic pricing and people’s emotions and evaluations, affective and cognitive responses of online consumers were measured. It turned out that valences of dynamic pricing do have an effect on how people feel and how they evaluate a brand afterwards. No effects were found for the variable margin of price difference, and also no interaction effects between both variables were found. The degree of brand loyalty (haters versus lovers) will not moderate the effect on people’s cognitive response, and the brand attitudes towards the brand.

In Figure 10 The hypotheses of this study are listed up as accepted ‘‘V’’ or rejected ‘‘X’’.

Figure 10: List of accepted ‘‘V’’ and rejected ‘‘X’’ hypotheses

<table>
<thead>
<tr>
<th>H#</th>
<th>Hypotheses</th>
<th>V or X</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1A</td>
<td>Negative dynamic pricing will induce more negative emotions compared to positive dynamic pricing.</td>
<td>V</td>
</tr>
<tr>
<td>H1B</td>
<td>Positive dynamic pricing will induce more positive emotions compared to negative dynamic pricing.</td>
<td>V</td>
</tr>
<tr>
<td>H1C</td>
<td>The effect of both, PDP and NDP, on people’s affective responses are more pronounced when higher margins of price differences are used, then when lower margins are used.</td>
<td>X</td>
</tr>
<tr>
<td>H2A</td>
<td>Negative dynamic pricing will affect the perceived price fairness more negative compared to positive dynamic pricing.</td>
<td>V</td>
</tr>
<tr>
<td>H2B</td>
<td>Positive dynamic pricing will affect the perceived price fairness more positive compared to negative dynamic pricing.</td>
<td>V</td>
</tr>
<tr>
<td>H2C</td>
<td>The effect of both, PDP and NDP, on people’s cognitive responses are more pronounced when higher margins of price differences are used, then when lower margins are used.</td>
<td>X</td>
</tr>
<tr>
<td>H3A</td>
<td>Negative dynamic pricing will induce more negative brand attitudes to both, platform and brand, compared to positive dynamic pricing</td>
<td>V</td>
</tr>
<tr>
<td>H3B</td>
<td>Positive dynamic pricing will induce more positive brand attitudes to both, platform and brand, compared to negative dynamic pricing</td>
<td>V</td>
</tr>
<tr>
<td>H3C</td>
<td>A valence of dynamic pricing has a more negative effect on the brand attitude towards the platform, compared to the brand attitude towards product brand.</td>
<td>V</td>
</tr>
<tr>
<td>H3D</td>
<td>The effect of both, PDP and NDP, on people’s brand attitude towards platforms are more pronounced when higher margins of price differences are used, then when lower margins are used.</td>
<td>X</td>
</tr>
<tr>
<td>H3E</td>
<td>The effect of both, PDP and NDP, on people’s brand attitude towards brands are more pronounced when higher margins of price differences are used, then when lower margins are used.</td>
<td>X</td>
</tr>
<tr>
<td>H4A</td>
<td>The degree of brand loyalty will moderate the effect on consumers’ affective responses. That is, from a business perspective, brand lovers have less negative responses compared to brand haters.</td>
<td>X</td>
</tr>
</tbody>
</table>
The degree of brand loyalty will moderate the effect on consumers’ cognitive responses. That is, from a business perspective, brand lovers have less negative responses compared to brand haters.  

H4B  The degree of brand loyalty will moderate the effect on consumer’s brand attitude towards the platform. That is, from a business perspective, brand lovers have less negative responses compared to brand haters.  

H4C  The degree of brand loyalty will moderate the effect on consumer’s brand attitude towards the brand. That is, from a business perspective, brand lovers have less negative responses compared to brand haters.  

H4D  Brand lovers experience less negative emotions, compared to brand haters.  

H5A  Brand lovers perceive the price more fair compared to brand haters.  

H5B  Brand lovers evaluate the platform better compared to brand haters.  

H5C  Brand lovers evaluate the brand better compared to brand haters.
6. DISCUSSION

In this study, the main goal was to determine if valences of dynamic pricing, including the different price margins, affect the emotions and evaluations people have. From a more practical perspective, what if consumers found out they have been “priced” because of their personal interests, search histories, or other reasons? Currently, not many people know that cookies are being used for price setting. Although, more online consumers are becoming aware of it with the help of newspapers, articles, and friends (Lifehacker, 2013). In practice most companies use the cookies to raise their price, although, lowering prices can also be a strategy.

With the help of pre-tests, information was gathered about how people perceive fluctuating prices in combination with cookies. One of the most interesting outcomes was the “who to blame” thought. Most people concluded that they can avoid a situation in which dynamic pricing appears, by buying the product directly at the first time of searching. In here, people blame themselves for the price change. The results of the main questionnaire confirmed this, since evidence was found that dynamic pricing highly affects the feeling of fear, hope, and pride in a negative way. Furthermore, people know that prices change online, however, only few can confirm situations in which cookies have been used for price setting.

First, the main results of this study confirm that the valence of dynamic pricing effect people’s affective response, and thus, their emotions. Whereas negative dynamic pricing provoked more negative emotions, compared to positive dynamic pricing. Considering this, giving people price reductions will help to let people feel more positive. Likewise, giving people a price increase, will let people feel less positive. The appraisal theory, as explained in Peine et al., (2010), gives an explanation for this effect. People will not experience more negative emotions when the margin of price increases. This means, when dynamic pricing is used, people have the same emotional state for a price above and below the level of 20 percent. Hereby needs to be taken into account that in the main questionnaire, people were told that the price changed, in order to make sure people were aware of dynamic pricing in combination with cookies.

Secondly, evidence is found that valences of dynamic pricing also affect people’s cognitive response, and thus, their perceived price fairness. Therefore, this study assumes that affective responses and cognitive responses are related to each other. When the price increased, people perceive the price as (very) unfair, which was significantly different from people exposed to a price reduction. However, even in the condition of giving people a price reduction, the score on perceived price fairness was relatively low. Explanations for this can be that price fairness is related to a reference price, which is the price consumers can remember via previous
transactions and market prices. The price should be equal to the price that consumers expect, in order to have a high score on perceived price fairness (Gielissen et al., 2008). In both valences of dynamic pricing, positive and negative, the price chances, which explains the low score on how people perceive the price. Increasing the price margin, in positive and negative dynamic pricing, will not lead to different scores on how people perceive the price. Giving an example, if an e-company raise their price with €8, people will perceive the price even “unfair” as it will be in the condition of raise the price with €60. Explanations for this can be the changed reference price too. Furthermore, additional results reveal what types of price setting strategies are seen as most inappropriate. Setting up prices based on the type of medium the consumer is ordering from, is seen as most inappropriate. Followed by using search behaviour or the location of the consumer.

Thirdly, now it is clear how valances of dynamic pricing effects people’ affective and cognitive responses, it is interesting to look in what way it effects the way how people evaluate online resellers and product brands, and thus, their brand attitude. This study’ results show that negative dynamic pricing will lead to a very low internal evaluation of an individual towards the platform (reseller). Controversially, positive dynamic pricing will make sure that people will evaluate a platform as very positive. The scores on how people evaluate the platform in both valences of dynamic pricing, are highly significant. In addition, evaluations towards the product brand are significant in positive and negative dynamic pricing, although, evaluations in both conditions are good in terms of how people evaluate the brand. Also for people’ brand attitude, the margin of price difference, does not play a role in how people’ evaluate the platform or brand subsequently. Based on these results, it can be assumed that people do not blame the product brand, in this study Apple, for the changing prices. Even if the price margin is manipulated (higher), people still do not give the brand a bad evaluation. In other words, behaviour of the platform, and thereby people’ evaluations, will not be linked towards brands.

Last, brand lovers and brand haters do have same the same emotional responses after dynamic pricing is applied. Looking to what extent people perceive the price as fair, no differences between brand lovers and brand haters can be found. Differences between brand lovers and brand haters can be found in the way how people evaluate brands. Namely, brand lovers gave better evaluations after a valence of dynamic pricing, compared to brand haters. In this case, it can be assumed that brand lovers accept more, in terms of actions, compared to brand haters. Although it was hypothesized, no evidence is found that brand loyalty is moderating the effect of dynamic pricing and the margin of price difference on the way how people feel and evaluate.
6.1 Limitations and future research

In order to measure how people respond if they have been ‘‘priced’’, it was needed to conduct situations in which cookies were used to set up the price. Therefore, information about the price change was given in the main questionnaire. In there, participants were told that their cookies have been used to set up the price. Trying to generalize this study’ results, could give a bias. Namely, in real-life-setting most people are not acquainted about dynamic pricing methods in combination with cookies, whereas in this study, every participant was acquainted with this information. However, evidence was found that more consumers are being aware of price setting strategies, and therefore, this study is the first step for further research.

For future research it would be also interesting to find out if valences of dynamic pricing also effects people’ responses in other product and price categories. In current study, a high involvement good was used with a relatively high price. In practice most people are familiar with price fluctuations in travel industry, whereas this study uses a tangible product: IPhone 6. Many related questions remain unanswered, since it would be interesting to find out for which products (categories), valances of dynamic pricing affect consumers responses, and thus behaviour.

Another limitation could be the fact that the questionnaire did not clearly told participants which strategy was used to decide which price they are charged for. That means, participants did not know if the price was based on their location, search behaviour, or other information which was stored by the e-company. For further research it will be interesting to measure to what extent these strategies separately, influence affective and cognitive responses, and thus people’ behaviour. This study only give insights in what types of price setting are seen as most inappropriate (see Discussion section).

Furthermore, this research does not focus on the impact of using cookies to set up price on society. There are main concerns that big online companies sell, or save, personalized data in order to give individuals different treatments. Current study has more value for marketers to increase insights in the impact of dynamic pricing policies. Therefore, further research could focus more on the social aspect, and the rising concern for privacy.

6.2 Practical implications

Where many studies examined the impact of dynamic price policies on companies’ revenues (Zhao & Zheng, 2000), or investigated the impact of changing prices in general (price affect) (Peine, Wentzel, & Herrmann, 2010), no studies focus on the effects of changing prices in combination with cookies. Dynamic pricing with cookies is not simply changing prices, since
it based on personal behaviour of online consumers, which can raise ethical questions or provoke privacy discussions (Kaptein, 2014). No current research takes into account the many factors of dynamic pricing in combination with cookies. For that reason, it makes this study unique, innovative, and more complete then other scientific research.

Three important practical implications protrude above all results of this study. First, online businesses need to be aware of the fact that knowledge about dynamic pricing strategies is rising among online shoppers. Knowing this, applying certain pricing strategies with cookies will affect the way how people feel, which in turn affect the way how consumers behave while buying. Thereby needs to be addressed that consumers are not sure ‘’who to blame’’ in case of price fluctuations based on cookies. This study revealed even examples of people who blamed themselves for the price change. E-business industry can make use of this ‘’who to blame’’ thought, and can try to remove their responsibility by, for example, adapting their communications, before more information about dynamic pricing strategies reaches the big crowd.

Secondly, whereas lowering prices, generates positive effects on how people feel, and evaluate, and increasing prices generates negative effects, the margin of the price fluctuation does not seem to play a role in people’ feelings and evaluations. Thus, giving consumers only a small price reduction, has the same effect of giving consumers a price reduction above 20 percent. E-businesses need to be aware that this effect will only occur, if the company communicates that the price reduction is based on personalized data, as stored in cookies. Controversially, increasing a price with a low margin, has the same effect of increasing the price with a high margin of price difference. Quick thinking, would conclude that companies can increase prices with a higher margin of price without getting more worse evaluations. Although, thereby, e-businesses need to be aware that higher prices will probably downsize their target group too.

Last, there are many examples of big online warehouses, such as Amazon, Wehkamp.nl or Bol.com, that are selling many different brands. This study reveals, and emphasizes, that price actions taken by the platform, do not affect the way how online shoppers evaluate the product brand eventually. Even if price margins increase, people do not evaluate brands more worse or better, depending on positive or negative dynamic pricing.
REFERENCES


APPENDICES

A. Dynamic Pricing Questionnaire (English)

Welcome

Thank you for participating in this survey, you are helping me to successfully complete thesis for the MSc. Marketing Communication

After answering questions about your loyalty to a specific brand, you are randomly exposed to a scenario in which we ask you to imagine yourself buying a certain product. It is important to read all of the given information carefully. After this, questions about the situation will be asked. The survey will end with a few questions about demographics.

The survey will take about 5 to 10 minutes to complete. All research data will be treated confidential.

Thank you.

Brand loyalty

Before staring the questionnaire, a few questions will be asked concerning your loyalty to the Apple. Please indicate to what extent you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither Agree or Disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I consider myself to be loyal to Apple as a phone brand</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>An iPhone would be my first choice</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I will not buy other brands if Phone is available at the store</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I will buy an iPhone in the future even if competitive phone brands offer cheaper prices</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Dutch consumer Association

Make sure you read the following article before continuing the questionnaire:

Dynamic Pricing: een prijstechniek van online warenhuizen, en niemand die het weet

"Een onderzoek van de consumentenbond blijkt dat steeds meer webshops hun prijzen aanpassen op basis van het surfgedrag van consumenten. Met behulp van deze zogeheten "cookies" zijn de grote online warenhuizen, zoals Wehkamp.nl, Bijenkorf.nl en Bol.com, in staat om de prestaties van de andere te ondersteunen. De mogelijkheid om gebruikmaking te identificeren en te volgen is voor veel websites een waardevolle strategie, door te volgen welke pagina's de gebruiker bezocht, en het zoek- en klikgedrag te analyseren, wordt de prijs voor elke afzonderlijke gebruiker aangepast. Hierdoor kan het voorkomen dat gebruikers verschillende prijzen betalen voor hetzelfde product."

Scenario's
Suppose you want to buy the following product. Imagine yourself wanting to buy an iPhone 6 off your most favorite brand Apple. A week ago, you were looking for this product to buy on Wehkamp.nl. You decided to wait a few days, before actually buying the product.

Today, a week later, you decided to buy your iPhone of your favorite brand on Wehkamp.nl. While clicking on the iPhone, you see that the price of your favorite phone brand is actually lower with the use of cookies. Wehkamp.nl changed the price based on your search and click behavior of last week. This current price is the price you have to pay, and only goes for you as an individual.

### Prijs vorige week: Jouw nieuwe prijs:

<table>
<thead>
<tr>
<th>Product</th>
<th>Old Price</th>
<th>New Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple iPhone 6 16 GB</td>
<td>€ 630</td>
<td>€ 504</td>
</tr>
</tbody>
</table>

Suppose you want to buy the following product. Imagine yourself wanting to buy an iPhone 6 off your most favorite brand Apple. A week ago, you were looking for this product to buy on Wehkamp.nl. You decided to wait a few days, before actually buying the product.

Today, a week later, you decided to buy your iPhone of your favorite brand on Wehkamp.nl. While clicking on the iPhone, you see that the price of your favorite phone brand is actually much lower with the use of cookies. Wehkamp.nl changed the price based on your search and click behavior of last week. This current price is the price you have to pay, and only goes for you as an individual.

### Prijs vorige week: Jouw nieuwe prijs:

<table>
<thead>
<tr>
<th>Product</th>
<th>Old Price</th>
<th>New Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple iPhone 6 16 GB</td>
<td>€ 630</td>
<td>€ 622</td>
</tr>
</tbody>
</table>
Suppose you want to buy the following product. Imagine yourself wanting to buy an iPhone 6 off your most favorite brand Apple. A week ago, you were looking for this product to buy on Wehkamp.nl. You decided to wait a few days, before actually buying the product.

Today, a week later, you decided to buy your iPhone of your favorite brand on Wehkamp.nl. While clicking on the iPhone, you see that the price of your favorite phone brand is actually higher with the use of cookies, Wehkamp.nl changed the price based on your search and click behavior of last week. This current price is the price you have to pay, and only goes for you as an individual.

**Prijs vorige week:**

[Image: iPhone 6.png]

**Jouw nieuwe prijs:**

[Image: iPhone 6.png]
### Affective Response

The following items describe different feelings and emotions in words. Please indicate to what extent you feel this way right now, that is, at the present moment. You can choose from "clearly does not describe my feelings" to "clearly describes my feelings".

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Clearly does not describe my feelings</th>
<th>Clearly describes my feelings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disgust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contempt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fascination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distaste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admiration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boredom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pride</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sadness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Brand Attitude

Please indicate how you will evaluate Welkamp.nl as a provider of the iPhone 6:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Negative</th>
<th>Neutral</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favorable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honest</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate how you will evaluate Apple as the owner of iPhone 6:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Negative</th>
<th>Neutral</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favorable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honest</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional questions: Cognitive & Strategies

The following questions are about how you perceive the new price that you have to pay for the iPhone 6. Please indicate to what extent you strongly agree - or strongly disagree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The price you are charged for represents a fair price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online consumers are treated fairly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel harmed because of the price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel misled because of the price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Web shops use different ways to decide which price will be asked to the online customer. Below, different forms of price setting strategies are listed up. Please indicate to what extent you evaluate the different strategies from inappropriate to very appropriate.

<table>
<thead>
<tr>
<th>Price setting based on the location of the consumer</th>
<th>Very Inappropriate</th>
<th>Inappropriate</th>
<th>Somewhat Inappropriate</th>
<th>Neutral</th>
<th>Somewhat Appropriate</th>
<th>Appropriate</th>
<th>Very Appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price setting based on the moment of time the consumer is buying</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price setting based on the search behavior of the consumer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price setting based on the type of medium the consumer is ordering from</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price setting based on the account profile that a consumer has on the website</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Demographics: online shopping

You are almost at the end of the questionnaire, only three short questions remain.

What is your gender?
- Male
- Female

To which age category do you belong?
- Under 15
- 16 - 24 year
- 25 - 34 year
- 35 - 44 year
- 45 - 54 year
- 55 - 64 year
- 65 year or older

How often do you buy products or services online every year?
- Never
- Rarely
- Sometimes
- Often
- All of the Time