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„The Effect of Brand Related Music on Visual Attention in a Shopping Context“

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Author's Note

I collected the data together in one file with my colleague Christoph Gramberger, BSc since we shared the eye tracking laboratory and used the same materials. The pictures for the eye tracking task and the online questionnaires were constructed together. Our instructions and a few hypotheses differ therefore we do not have the same participants. I recruited my own participants while my colleague had his pool of participants. Also, the data analysis, the literature research and the writing of this master thesis was all done by myself.

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Zusammenfassung

Diese Studie hat zum Ziel, den Einfluss von markenbezogener Musik auf die visuelle Aufmerksamkeit hin zu den Markenprodukten zu untersuchen. In Anlehnung an die modifizierte Spreading-Activation Theorie von Collins und Loftus (1975) erwarte ich, dass markenbezogene Musik Markenprodukte im Gedächtnis zugänglicher macht und dadurch die Aufmerksamkeit auf die Produkte gelenkt wird. Um dies herauszufinden, schauten insgesamt 56 TeilnehmerInnen in einer Eye Tracking Aufgabe auf virtuelle Regale, während instrumentelle Lieder gespielt wurden. Darunter war ein markenbezogener Jingle, und es gab Regale, die zwei Produkte (Hauptprodukt und Subprodukt) jener Marke beinhalteten. Jedes Regal wurde drei Mal gezeigt. Die Ergebnisse zeigen, dass Personen, die den Jingle hörten, während der zweiten Präsentation des Regals tendenziell länger auf das Hauptprodukt schauten; andererseits schauten Personen, die den Jingle nicht gehört haben, während der letzten Präsentation des Regals länger auf dieses Produkt und kehrten öfters mit dem Blick darauf zurück. Weiteres glitten Personen, die den Jingle nicht gehört haben, schneller mit dem Blick zum Subprodukt während der letzten Präsentation des Regals als jene, die den Jingle gehört haben, wenn das Produkt sich auf der rechten Seite befand. Im letzten Abschnitt dieser Arbeit wird auf mögliche Erklärungen für diese Ergebnisse eingegangen.

Abstract

The present study aims to examine if brand related music influences the visual attention on brand products and works as a prime. According to the spreading-activation theory modified by Collins and Loftus (1975) I expect that the brand related music makes the brand products more accessible in memory and draws the attention to them. In order to find out, 56 participants looked at virtual shelves during an eye tracking task while instrumental songs were played. Among the songs was a brand related jingle and there were shelves containing two products (flagship product and sub brand product) of the corresponding brand. Each shelf was shown three times. The results show that people who were exposed to the jingle tend to look longer at the Haribo flagship product during the second presentation; however, people who were not exposed to the jingle looked longer at it and had a higher revisiting rate during the last presentation. Also, people who were not exposed to the jingle were drawn faster to the Haribo sub brand product during the last presentation when it was on the right than people who were exposed to the jingle. Possible explanations will be discussed in the final section of this thesis.

Introduction

It is difficult to imagine a world without music. Music seems to infiltrate every part of our daily lives, especially when we are confronted with media like radio or TV. Furthermore, it accompanies us during consumer situations – Shops, bars or restaurants use background music as it is known to influence consumer behavior in certain ways: The tempo of music for example affects the speed of consumer behavior (Garlin & Owen, 2007; Milliman, 1982, 1986). Slower, more familiar music with lower volume results in customers staying marginally longer in a shop than when the music is faster, louder or unfamiliar (Garlin & Owen, 2007). When slower music is played in a restaurant guests are more likely to stay longer while eating slower (Milliman, 1986), which results in a higher consumption of drinks. Chebat, Chebat and Vaillant (2001) even stated that background music is able to increase sales and evoke positive attitudes towards a store.

Another important finding is that music can activate certain associations and act as a prime, a previous shown stimulus that can determine your actions. One study conducted by North, Hargreaves and McKendrick (1999) showed that the sale of German wine increased when German music was played and that more French wine was sold when French music was played.

Due to the better understanding of the advantages of music, the trend of *sound branding* also arises (Steiner, 2009). If one is watching television commercials or listens to commercials in radios one might realize that it is quite common to combine products of certain brands with a unique musical piece, a jingle. Being repeatedly exposed to a jingle enables one to create associations with the brand and as a result it becomes easier to identify the brand whenever one is listening to a jingle which is related to the brand (Steiner, 2009). Usually this

musical piece comes at the end of an advertisement in order to make it easier to remember.

The study conducted by North et al. (1999) shows the influence of background music on the choice of a certain product. This arouses interest in examining this priming effect with different product categories and different background music. Due to the rise of sound branding (Steiner, 2009) brand related music becomes more relevant and because brand related music is usually filled with associations it can act as a prime. Seidl (2014), for example, found that people who were exposed to the instrumental *Haribo* jingle looked significantly longer at the Haribo products (fruit gums) and were more likely to choose the Haribo products during an eye tracker task.

But how strong is this priming effect? Will it be noticeable even when people are just asked to look at products? The main question of this study is if a jingle is able to draw the attention to a brand product that is related to the jingle even though the participants do not have the intention to buy anything. Visual attention plays an important role in consumer behavior because the more attention is spent on a product the more likely it is to be chosen (Janiszewski, Kuo & Tavassoli, 2013). Furthermore, in the present study the prime which is a brand related jingle will be played while the participants are confronted with pictures of shelves filled with brand products in an eye tracking task. Customers' choice usually takes place in front of a shelf; therefore, it is interesting to observe the influence of the brand related jingle during a shopping situation rather than playing the jingle in a concentration task like Seidl (2014) did. Additionally, the present study uses a flagship product and a sub brand product to see if the sub brand product also gets

more attention when people hear the jingle. When comparing the flagship product with the sub brand product it should get less attention than the flagship product.

Theoretical Background

The Priming Effect

Why is it that we tend to recognize objects faster and easier when we read a word, saw a picture or smelled an odor related to these objects? The so-called *priming effect* describes the phenomenon of being influenced by a previous shown stimulus, namely a prime. Priming can occur without a person being aware of the prime and the influence can be corrected when people become aware of a possible bias effect (Janiszewski & Wyer, 2014). When being primed, related knowledge is activated and proves to be easily retrievable due to the recent confrontation with a stimulus (Bilandzic, Schramm, & Matthes, 2015).

There are three factors which influence the priming effect: The time when people were confronted with the prime, the repetition of the prime and the fitting between the prime and the environment (Bilandzic, Schramm, & Matthes, 2015). If the confrontation with a prime happened recently and if the prime is repeated a few times the effect is stronger. Also, the prime should be applicable on the environment. However, it is important to note that the priming paradigm should not be confused with the learning paradigms since priming shows only temporary effects (Janiszewski & Wyer, 2014).

The priming effect can be categorized in many types therefore this paradigm is very complex. Janiszewski and Wyer (2014) give a good overview about the different types which are relevant for consumer psychology: First we

have *content priming* which states that a stimulus activates related associations or as the authors call it mental representations, which in turn are more likely integrated in perceptions, judgments and even choices when the accessibility is high. The content can be classified in four types, namely semantic, affective, motivational and behavioral. These four types also result in different classes of prime. One example of content priming is *semantic priming* which is shown in the study conducted by Nedungadi (1990): The participants were shown advertisements, among them one of the fast food restaurant *St. Hubert's*, which made this brand and similar fast food restaurant brands like *Swiss Chalet* and *Kentucky Fried* more accessible in memory. While making them more accessible, the likelihood of St. Hubert's and Swiss Chalet being considered choosing increased. Especially for Swiss Chalet the probability of choosing increased.

Process priming on the other hand influences cognitive processes by making these processes more accessible (Janiszewski & Wyer, 2014). It can influence attention, comprehension, memory retrieval and responding. An example would be that people who repeated a slow speech are significantly slower with completing a survey (Shen, Wyer, & Cai, 2012). According to Janiszewski and Wyer (2014) both types, content and process priming, are not as wholly independent from each other as it was historically assumed. This can be demonstrated, for example, in the study of Brasel and Gips (2011) in which they primed people with the brand *Red Bull*. Participants who were confronted with this prime were taking more risks in a video game by driving faster in a car race.

Another possible differentiation of the priming effect is that of *perceptual* and *conceptual priming* (Kim, Porter, & Goolkasian, 2014): Perceptual priming is a result of similar physical appearance between the prime stimulus and the target

stimulus. On the other hand, conceptual priming is effective because of the similarity of the meaning of the prime stimulus and the meaning of the target stimulus. This type of priming is based on the semantic memory, an example would be a picture of a dog and the sound of a bark.

For this study, both the semantic priming and the conceptual priming are relevant because jingles can activate associations to a brand (Steiner, 2009). If you are confronted with a jingle you have heard before and can relate to a certain brand it is most likely that you will think about this brand. But why is that so? What is behind the priming effect? A theory which tries to give an insight into the priming effect is the spreading-activation theory modified by Collins and Loftus (1975). The main focus of this theory is on concepts which can be represented as nodes in a semantic network and which are linked together. The links can be different in their strengths. In addition to that, the concepts are organized based on the semantic similarities. This means that “the more properties two concepts have in common, the more links there are between the two nodes via these properties and the more closely related are the concepts” (Collins & Loftus, 1975, p. 411). This explains why the priming effect especially works when the prime is related to the target.

Many things can act as a prime. For example Seo, Roidl, Müller and Negoias (2010) showed that the odor can influence the visual reaction towards congruent objects. In their study, participants were confronted with orange, lavender, coffee and licorice scents and when they saw pictures of different objects they focused on the congruent objects more often and longer. This study is one example of cross-modal priming; here, the scents primed the visual reaction towards the objects. Other studies which examined a cross-modal priming effect

are studies with sound cues and picture targets (Chen & Spence, 2010; Kim, Porter & Goolkasian, 2014). Kim, Porter and Goolkasian (2014) examined conceptual priming across modalities with pictures and natural sounds and found out that although picture cues have a stronger impact on reaction time towards picture or sound targets, sound cues have a significant influence on reaction time as well. When sound was used as a cue it facilitated the response on picture targets. Chen and Spence (2010) showed that simultaneously presented environmental sounds which are semantically congruent with a picture target facilitated the identification of this picture target.

According to these findings, sound cues can lead to a priming effect. Music on the other hand is more complex but it can still carry information. Yalch (1991) for example found out that jingles make brands easier to remember when he compared advertisement with jingles and advertisement without jingles. Since music is assumed to be able to activate associations and even stereotypes (North et al., 1999) music should also be able to act like a prime. Recently, the interest shifted to examining the influence of brand related music and jingles (see Florack, Domofte, Rössler, & Leder, 2012; Knoeferle, Knoeferle, Velasco, & Spence, 2014; Seidl, 2014). Florack et al. (2012) conducted a field experiment in which they played a brand associated song, expecting that the song would activate the associated product which in turn would influence the choice. This song increased the sale of the associated product, namely the beer *Beck's Pils*, while the sale of other products in this line marginally reduced.

Concerning visual attention, Knoeferle et al. (2014) showed that congruent sound like a jingle or usage sound enhanced the visual attention towards a brand product. In a search task, participants who heard a congruent sound located the

product faster than when no sound was played and they also made fewer fixations prior fixating the product. In an eye tracking study, Seidl (2014) demonstrated that people who were confronted with the Haribo jingle looked significantly longer at the Haribo products and were more likely to choose the product when they were instructed to choose something from the virtual shelf.

The present study focuses on the priming effect of brand related music on visual attention seeing as visual attention plays an important role in product choice.

The Role of Visual Attention in Product Choice

What influences our product choice? This is one of the biggest questions market researchers try to answer since it is companies' goal to sell their products. Dijksterhuis, Smith, van Baaren and Wigboldus (2005) state that product choices are often unconscious and that most of the products we decided to buy in a supermarket are chosen after a short moment of awareness. Most of the time consumers' thoughts are occupied with things other than groceries. Despite not weighing pros and cons of a product, people still end up buying lots of goods. There are many reasons why we might choose certain products, for example our habits and preferences of certain products (Dijksterhuis et al., 2005). Additionally, when we are hungry we tend to buy more, and when we see special sales we are also more likely to consider buying something.

Before actually choosing a product one usually looks at the product because one considers buying it. As Suher and Hutchinson (2014) state, "eye-movements are informative about processes such as attention, information, acquisition, and choice." (p. 166). What does, in fact, happen during a shopping

trip was shown in the study of Suher and Hutchinson (2014): With the help of a mobile eye tracking device they recorded visual fixations for each purchased product and fixations for not purchased products. Their results suggest that most of consumer's visual attention is drawn on graphic elements of the product followed by the brand name. The visual attention on the brand information varies across the product categories. Especially brand information of snacks and sweets get more attention than the brand information of dairy products. However, not only visual components determine the visual attention: As van der Lans, Pieters and Wedel (2008) found out, apart from bottom up-components that are in-store activities and the visual component like package design, top-down components that are out-of store marketing activities like advertising can influence the visual attention, especially when already looking for certain brands, as well.

Even if it is just a short moment of awareness, a product has to capture the attention of a potential buyer. Shimojo, Simion, Shimojo and Scheier (2003) showed that manipulating the gaze duration can have an impact on preference decisions. They found out that people also tend to look longer at a product which they are going to choose just prior to the decision and called it the *"Gaze Cascade Effect".* After the first time we fixate an item which we are going to choose, it will receive more and more attention (Gidlöf, Wallin, Dewhurst, & Holmqvist, 2013). Furthermore, Janiszewski, Kuo and Tavassoli (2013) state that longer visual attention on a product results in a higher probability of choosing this product. Moreover, Behe, Bae, Huddleston and Sage (2015) demonstrated that people who had a greater visual attention towards a product, the information sign and prize tag, were more likely to choose the product. Especially highly involved people paid more attention.

So it seems that visual attention is a great predictor of product choice. Even people who do not have any intention of buying anything might be affected if they spent enough visual attention on a product. It is rather common that one leaves supermarkets with more products than one intended to buy. For example people who did not write a shopping list beforehand get carried away easily and are drawn to distracting products (Kempinski, 2013). Furthermore, there are people with impulsive buying tendencies who are usually influenced by subtle environmental cues such as background music (Dijksterhuis et al., 2005). There is the widespread assumption that many purchases are unplanned (Bell, Corsten, & Knox, 2011) and so it is believed that most consumer decision happens in the store. Especially when the store was chosen because of good prizing or shopping convenience there is more unplanned buying (Bell et al., 2011). Because many purchases seem to be unplanned, the present study aims to examine the priming effect of brand related music on visual attention while there is no intention to buy anything. I assume that the priming effect is strong enough to draw the attention to a certain product.

According to the spreading-activation theory modified by Collins and Loftus (1975) I expect that the brand related music activates associations with the brand and draws the attention to the brand product, particularly because the time difference between the presentation of the brand music and the presentation of the shelf, which includes the brand product, is short in the present study. Drèze, Hoch and Purk (1994) discovered that the lowest shelf has the worst level of brand location effects so I decided to put the brand products in the lowest shelf. Despite that I still expect an effect.

Because the sub brand product is also associated with the brand but is usually not associated with first when thinking of the brand, I assume that it will get more attention when the jingle is played but less attention than the flagship product. Because Florack et al. (2012) showed that the brand associated song lead to an increased sale of the beer Beck's Pils while the sale of other Beck's beers marginally decreased, I presume that the flagship product, in this case the *Haribo Goldbär* (fruit gums), will get more attention than the sub brand product *Haribo Happy Cola* (*Coca Cola* flavored fruit gums) when the *Haribo* jingle is played.

Specifically, I hypothesize that people who are confronted with the Haribo jingle will look longer at the Haribo flagship product and also longer at the Haribo sub brand product than people who do not hear the Haribo jingle before. Also, people who listened to the jingle will look longer at the flagship product than at the sub brand product. This will be measured with the *dwell time*. Dwell time is recorded via an eye tracking device and it means the total time of fixations spent on a certain spot, the *area of interest* (*AOI*).

H1: People who are exposed to the Haribo jingle will spend more time looking at the Haribo products in total than people who are not exposed to the Haribo jingle.

H2: People who are exposed to the Haribo jingle will spend more time looking at the Haribo flagship product in total than on the Haribo sub brand product.

Also, *first fixation duration* is recorded via an eye tracking device and it is, as the name implies, the time of the first fixation spent on an AOI. It should capture one's interest. Chandon, Hutchinson, Badlow and Young (2009) for example think that eye fixations are important for object identification, especially at supermarket shelves, therefore they are a good indicator for visual attention. The first fixation duration is hypothesized to be longer for the people who are exposed to the jingle. In addition to that, the flagship product should be fixated longer than the sub brand product.

H3: People who are exposed to the Haribo jingle will fixate the Haribo products longer during the first fixation than people who are not exposed to the Haribo jingle.

H4: People who are exposed to the Haribo jingle will fixate the Haribo flagship product longer during the first fixation than the Haribo sub brand product. (Interaction between the condition "Jingle" or "Without Jingle" and the products "Haribo Goldbär" or "Haribo Happy Cola")

People who hear the Haribo jingle are also expected to shift their gaze faster to the Haribo products than people who did not hear the jingle which means the *entry time* should be shorter for the ones who hear the jingle. Entry time is recorded via an eye tracking device too and it is the time until the first fixation. Moreover, the flagship product should be noticed faster than the sub brand product when people are exposed to the jingle.

H5: People who are exposed to the Haribo jingle will shift their gaze faster to the Haribo products than people who are not exposed to the Haribo jingle.

H6: People who are exposed to the Haribo jingle will shift their gaze faster to the Haribo flagship product than to the Haribo sub brand product. (Interaction between the condition "Jingle" or "Without Jingle" and the products "Haribo Goldbär" or "Haribo Happy Cola")

Because the eye tracking task does not include a choice option and prevents the participants from having an intention to buy, I presume that there is no difference between the ones who hear the jingle and the ones who do not hear the jingle in the amount of *revisits*. Revisits measure the repeated glances towards an AOI and are also recorded via an eye tracking device.

H7: People who are exposed to the Haribo jingle will not differ from people who are not exposed to the Haribo jingle in terms of repeated glances towards the Haribo products.

Methods

Participants and Design

I recruited participants via *Facebook* and Email and was able to motivate students near the laboratory. Additionally, I used the *LABS* system of the University of Vienna which gives students credit points for participating in this study. In total, 69 people participated in the study. Due to problems with the calibration for the eye tracking task I had to exclude 13, therefore my final number

of participants is 56 with a calibration value under 0.9. Thirty-nine participants were female (69.6%) whereas 17 were male (30.4%), the age ranged from 18 to 69 years (*M* = 25.16, *SD* = 7.93). Most of the participants were students or pupils, with the exception of 9 people.

There are two between-subject factors: First, the songs differed during the eye tracking task. Either the participants were exposed to the Haribo jingle among other songs or they were not exposed to the Haribo jingle (*Jingle* or *Without Jingle* condition). Second, the positioning of the Haribo products differed. Either the Haribo flagship product was on the left while the Haribo sub brand product was on the right, or the Haribo flagship product was on the right while the Haribo sub brand product was on the left (*Haribo Goldbär Left* or *Haribo Goldbär Right* condition).

Also, there are two within-subject factors: The Haribo flagship product and the Haribo sub brand product were compared (Haribo Goldbär or Haribo Happy Cola) and the order of the shelves was taking into account (*First, Second* or *Third Shelf*). Together with the between-subject factors, this results in a 2 x 2 x 2 x 3 design.

The participants were randomly assigned to one out of four groups: The *Haribo Goldbär Left Jingle* group, the *Haribo Goldbär Left Without Jingle* group, the *Haribo Goldbär Right Jingle* group and the *Haribo Goldbär Right Without Jingle* group. Twenty-nine participants were in the Jingle condition (Haribo Goldbär Left Jingle *N* = 14, Haribo Goldbär Right Jingle *N* = 15) and 27 participants in the Without Jingle condition (Haribo Goldbär Left Without Jingle *N* = 13, Haribo Goldbär Right Without Jingle *N* = 14).

After looking at the data I found an extreme outlier concerning the dwell time towards the Haribo flagship product during all presentations. Therefore, I decided to exclude this person. The final participant number is 55, with 13 instead of 14 being in the Haribo Goldbär Right Without Jingle group.

Materials

Questionnaires. I prepared two online questionnaires on the *Unipark* website in German which are similar to the questionnaires of Seidl's (2014) study. The first one includes demographic questions, namely the gender, the age, the highest education, the occupation and the current semester (if the participants are students). In addition, current hunger and thirst is measured, each on a Likert scale from 1 to 9 with 1 being the least hungry and least thirsty and 9 being very hungry and very thirsty, and with questions about the last food intake and last drink consumption.

The second questionnaire includes questions about the music played in order to confirm if the participants have noticed the Haribo jingle and the emotional state during the eye tracking task, the ratings (Attractiveness, Interest, Positivity) of the products that appeared in the eye tracking task along with questions about the consumption and the advertisements of these products, the buying impulsiveness scale (Rook & Fisher, 1995; e.g., "I often buy things spontaneously"), eating habits and finally a question about the intention of the study. The questionnaires should record potential influencing factors; however, they were not used for the statistical analysis except the question about the music

played and the ratings of the products in further analysis. The detailed descriptions and the images of the questionnaires can be found in the appendix.

Eye Tracking Task. For the eye tracking task, the eye tracking device SMI RED 500 with a sampling rate of 250 Hz, which was located underneath a screen, was recording the data. Dwell time, first fixation duration and entry time were measured in milliseconds; Revisits were measured in the relative frequency. A chair was positioned approximately 60 cm away from the screen.

The pictures of the shelves which were shown during the eye tracking task were constructed with the help of the picture editor program *Gimp version 2.8.14* using pictures of different care products, chips, beverage, instant food products, fruit gums and washing powder found on the internet. Those products are available in Austrian supermarkets. In total, there are seven different shelves, each one has three rows and in total 15 products. Each product has only one facing in order to make it easier to identify an AOI with the eye tracker. The target products Haribo Goldbär (flagship product of the brand) and Haribo Happy Cola (sub brand product) are located in the lower shelf because the lowest shelf has the worst level of brand location effects (Drèze, Hoch, & Purk, 1994). Both products are not located next to each other. There is one product in between to make comparing which one gets more attention, easier. The pictures of the shelves are included in the appendix.

Moreover, I obtained a private video clip filmed in a supermarket in order to emulate a shopping scenario for the participants. After cutting the video clip with the programme *Free Video Editor*, the duration of it is 2 minutes 58 seconds.

In addition to showing the pictures of the shelves, there was different instrumental music audible during the eye tracking task. I chose six instrumental music clips from Seidl's (2014) study and constructed one music clip with a part of the song "You Can Leave Your Hat On", the instrumental Haribo jingle and a part of the "Magnificent Seven" theme. I constructed another music clip using the same songs with the exception of the Haribo jingle which I replaced with a part of the song "Soul Bossa Nova". The construction of the music was done with the help of the programme *Free Audio Editor*. The music could be heard via a loud speaker near the eye tracking device.

Procedure

The study was conducted in the eye-tracking laboratory of the University of Vienna. The duration of the study ranged from 25 to 35 minutes and consisted of three parts. Before beginning the study the participants were given a consent form. After signing the consent form, participants had to fill in the first online questionnaire.

When the questionnaire was completed, I instructed the participants to change the location and sit in front of the monitor, with the eye tracking device underneath, and explained the procedure of eye tracking. If the participants sat comfortably and if the eye tracker was able to recognize the position of the eyes, I told them to avoid moving too much from this point on and to look at the screen as if they were watching television. The next step was the calibration. As long as the calibration values were under 1, participants continued with the eye tracking task.

First, participants saw a short video clip in a super market so that they could put themselves in the shopping situation. After that, the actual task began and they were instructed to imagine that they already bought what they were looking for and that they would now see five different shelves before going to the cash point. Each shelf would be shown for 15 seconds and after the five shelves were presented once, they were presented again two times in the same order. The participants were told that while looking at the shelves, music would be played like a usual background noise.

Before the actual five shelves were shown, one test shelf was shown in order to give the participants an impression how a shelf in the task would look like. This test shelf was a shelf filled with care products. The order of the actual shelves in the task was as follows: Shelf with chips, shelf with beverages, shelf with instant food, shelf with fruit gums including two products of the brand Haribo and shelf with washing agents. Depending on the group, the position of the Haribo products differed (see Figure 1 and Figure 2).

Only in the Jingle condition, the Haribo jingle was played during the shelf with beverages along with two other short instrumental songs. At the other shelves, short instrumental songs like nursery rhymes and Christmas songs, mixed with club songs, were played. While one shelf was presented for 15 seconds, three instrumental songs were audible through loud speakers and the volume was kept constant for every participant.

After the eye tracking task, I instructed the participants to change the location again, back to the laptop in order to fill in the second online questionnaire.

Figure 1. Shelf including the Haribo products which was shown for the Haribo Goldbär Left Jingle and the Haribo Goldbär Left Without Jingle group.

Figure 2. Shelf including the Haribo products which was shown for the Haribo Goldbär Right Jingle and the Haribo Goldbär Right Without Jingle group.

Results

Testing the Hypotheses

I conducted an analysis of variance with repeated measures of the eye tracking data, namely dwell time, first fixation duration, entry time and revisits, in order to test the hypotheses. The within subject factors for every repeated measure analysis of variance used were “Product”, distinguishing the Haribo Goldbär product and the sub brand product Haribo Happy Cola, and the factor “Shelf”, meaning the first, the second and the third presentation of the fruit gum shelf. “Condition”, differentiating the Jingle and Without Jingle condition, and “Position”, differentiating the Haribo Goldbär Left and Haribo Goldbär Right condition, were the between subject factors for every repeated measure analysis of variance used. I also used a t-Test for independent samples to compare the means. According to Rasch, Friese, Hofmann and Naumann (2010), the t-Test is robust against the normal distribution requirement and can be informative even if one requirement cannot be met.

Hypotheses 1 and 2. I assumed that people who are exposed to the Haribo jingle would look longer on the Haribo products than people who are not exposed to this jingle which means there should be the main effect “Condition” (Jingle or Without Jingle) and perhaps additional interactions with “Condition”. Especially the Haribo flagship product should get more attention than the Haribo sub brand product when being exposed to the Haribo jingle, therefore there should be an interaction between “Condition” and “Product” (Haribo Goldbär or Haribo Happy Cola). In order to find out, I tested the dependent variable dwell time. There was no significant effect with the repeated measure analysis of variance. Neither

the main effect “Condition”, $F(1, 54) = .09$, $p > .05$, the interaction between “Shelf” (First, Second or Third Shelf) and “Condition”, $F(2, 53) = 1.25$, $p > .05$, the interaction between “Shelf”, “Position” (Haribo Goldbär Left or Haribo Goldbär Right) and “Condition”, $F(2, 53) = .08$, $p > .05$, the interaction between “Product” and “Condition”, $F(1, 54) = 2.06$, $p > .05$, the interaction between “Product”, “Position” and “Condition”, $F(1,54) = .01$, $p > .05$, the interaction between “Shelf”, “Product” and “Condition”, $F(2, 53) = 2.83$, $p > .05$, nor the interaction between “Shelf”, “Product”, “Position” and “Condition”, $F(2, 53) = .39$, $p > .05$, was significant.

Additionally, I conducted a t-Test for independent samples. The t-Test showed an almost significant difference during the second shelf, $t(53) = 1.66$, $p = .052$, with the people in the Jingle condition looking longer at the Haribo flagship product ($M = 597.43$, $SD = 450.08$) than the people in the Without Jingle condition ($M = 416.89$, $SD = 345.01$). There was also a significant difference during the third shelf, $t(53) = -1.87$, $p < .05$, with the people in the Without Jingle condition looking longer at the Haribo flagship product ($M = 674.67$, $SD = 576.91$) than the people in the Jingle condition ($M = 436.15$, $SD = 351.69$) (see Figure 3). Looking at the positioning of the products, the significant difference in the third shelf was only detectable when comparing the Haribo Goldbär Right Jingle with the Haribo Goldbär Right Without Jingle group, $t(26) = -2.35$, $p = .013$.

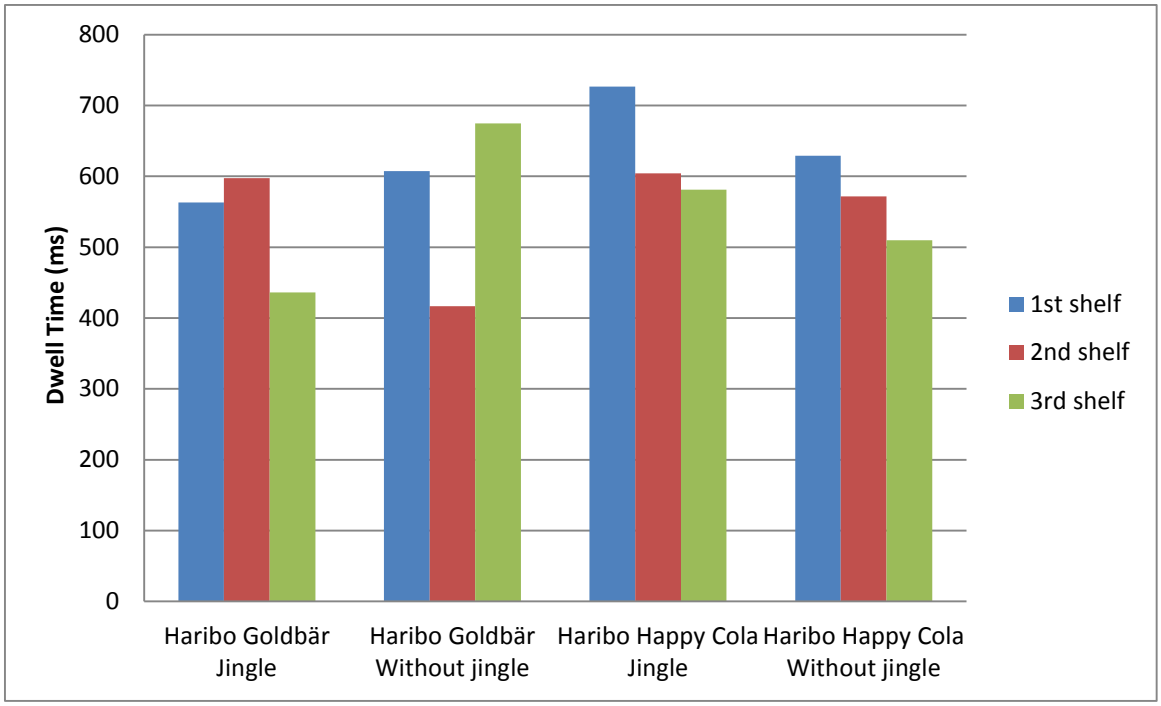

Figure 3. Dwell time means during 1st shelf, 2nd shelf and 3rd shelf, comparing the Jingle and the Without Jingle condition and the Haribo products.

Hypotheses 3 and 4. The next hypothesis is, if people who are exposed to the Haribo jingle will fixate the Haribo products longer during the first fixation than people who are not exposed to this jingle, meaning a main effect of "Condition" (Jingle or Without Jingle) and perhaps additional interactions with "Condition". Especially the Haribo flagship product should be fixated longer during the first fixation when people are exposed to the Haribo jingle, meaning an interaction between "Condition" and "Product" (Haribo Goldbär or Haribo Happy Cola), which is my fourth hypothesis. I conducted a repeated measure analysis of variance again, this time with the dependent variable first fixation duration. The analysis of variance resulted in a significant interaction between "Product", "Position" (Haribo Goldbär Left or Haribo Goldbär Right) and "Condition", $F(1, 54) = 4.12$, $p < .05$, while the main effect "Condition", $F(1, 54) = 2.81$, $p > .05$, and the interaction

between “Product” and “Condition”, $F(1, 54) = .01$, $p > 0.5$, were not significant. Consequently, I compared the means of the Haribo Goldbär Left Jingle with the Haribo Goldbär Left Without Jingle group and the Haribo Goldbär Right Jingle with the Haribo Goldbär Right Without Jingle group by conducting a t-Test for independent samples. The Haribo Goldbär Left Jingle group had a tendency to fixate the Haribo sub brand product longer during the first presentation of the shelf ($M = 391.51$, $SD = 316.50$) than the Haribo Goldbär Left Without Jingle group ($M = 227.99$, $SD = 189.90$), $t(25) = 1.61$, $p = .060$. Figure 4 gives an overview of the Haribo Goldbär Left condition.

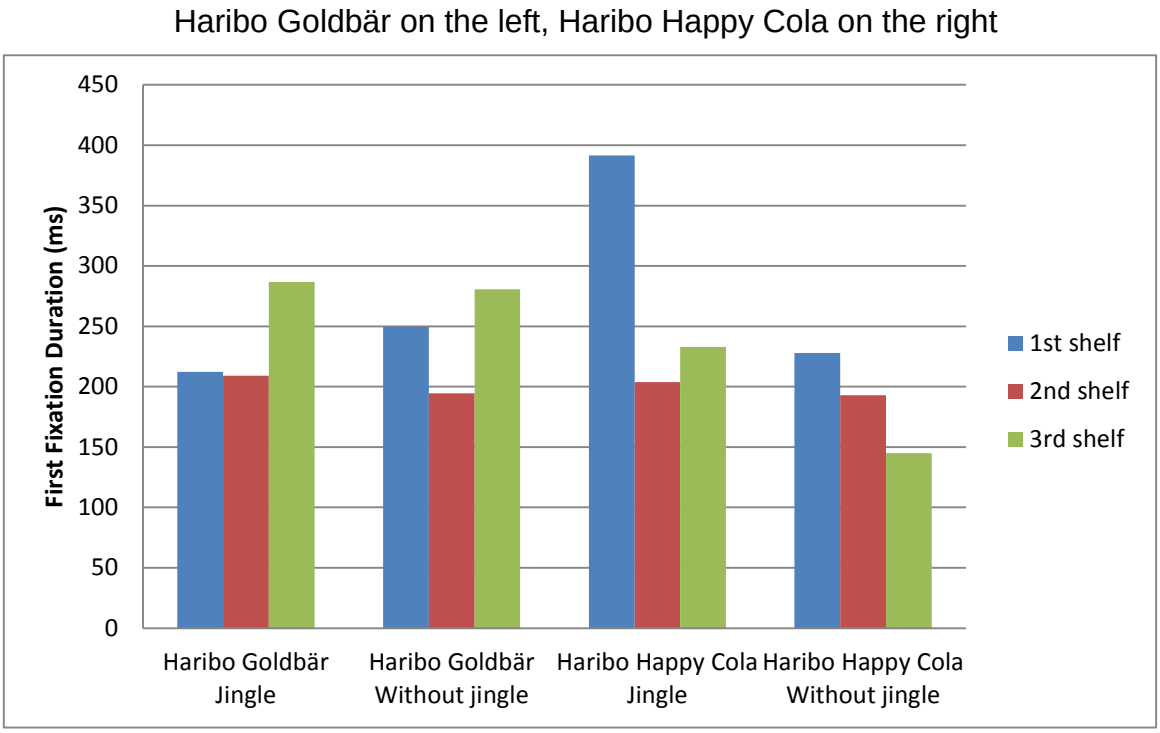

Figure 4. First fixation duration means during 1st shelf, 2nd shelf and 3rd shelf, comparing the Haribo Goldbär Left Jingle with the Haribo Goldbär Left Without Jingle group and the Haribo products.

The Haribo Goldbär Right Without Jingle group on the other hand had a tendency to fixate the Haribo flagship product longer during the third presentation (*M* = 340.58, *SD* = 193.79), than the Haribo Goldbär Right Jingle group (*M* = 230.49, *SD* = 160.66), *t*(26) = -1.64, *p* = .056. Figure 5 gives an overview of the Haribo Goldbär Right condition.

Haribo Happy Cola on the left, Haribo Goldbär on the right

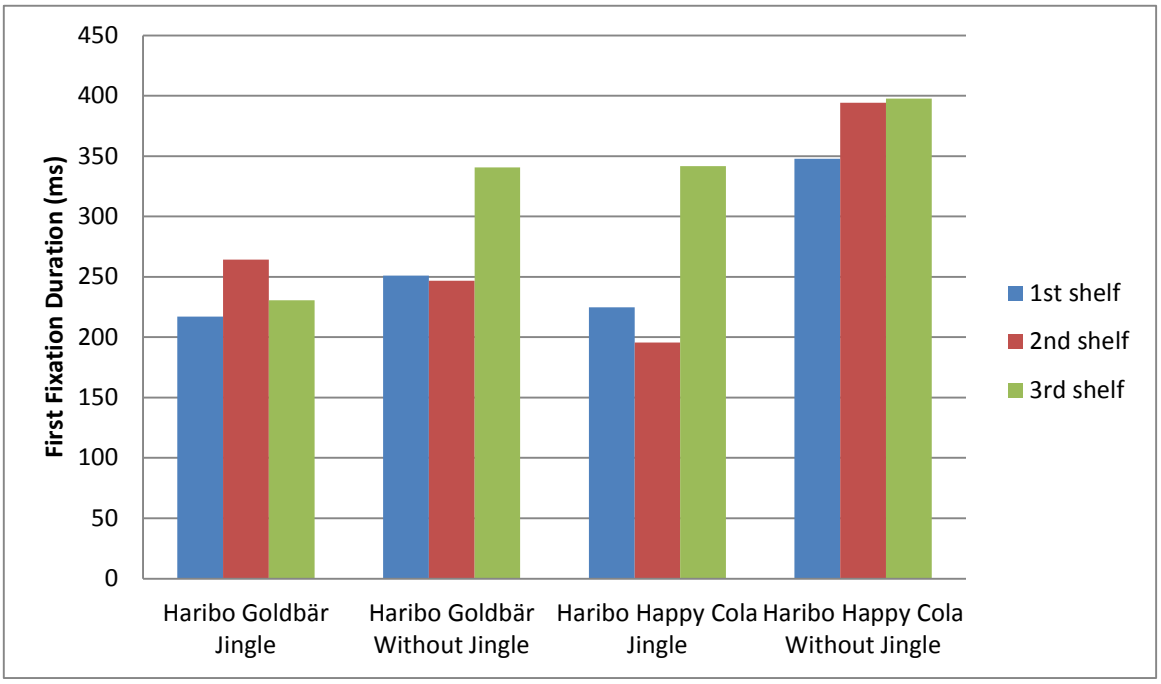

Figure 5. First fixation duration means during 1st shelf, 2nd shelf and 3rd shelf, comparing the Haribo Goldbär Right Jingle and the Haribo Goldbär Right Without Jingle group and the Haribo products.

Hypotheses 5 and 6. I assumed that people who were exposed to the Haribo jingle would be drawn faster to the Haribo products than people who were not exposed to this jingle, meaning there should be a main effect "Condition" (Jingle or Without Jingle) and perhaps additional interactions with "Condition". The people who were exposed to the jingle should especially be drawn faster to the Haribo flagship product, meaning there should be an interaction between

“Condition” and “Product” (Haribo Goldbär or Haribo Happy Cola). Following, entry time was the dependent variable in a repeated measure analysis of variance. There was a significant interaction between “Product”, “Shelf” (First, Second or Third Shelf), “Condition” and “Position” (Haribo Goldbär Left or Haribo Goldbär Right), $F(2, 53) = 3.24$, $p < .05$, while the main effect “Condition”, $F(1, 54) = .30$, $p > .05$, and the interaction between “Product” and “Condition”, $F(1, 54) = 1.19$, $p > .05$, were not significant. Accordingly, I compared the means and conducted a t-Test for independent samples. When I compared the Jingle and the Without Jingle condition, there was no significant effect, $t(53) = -.76$, $p > .05$ for the Haribo Goldbär in the first shelf, $t(53) = -.40$, $p > .05$ for the Haribo Goldbär in the second shelf, $t(53) = .99$, $p > .05$ for the Haribo Goldbär in the third shelf, $t(42.82) = .12$, $p > .05$ for the Haribo Happy Cola in the first shelf, $t(53)= .39$, $p > .05$ for the Haribo Happy Cola in the second shelf and $t(53) = 1.4$, $p > .05$ for the Haribo Happy Cola in the third shelf. However, when I compared the participants in the Haribo Goldbär Left Jingle group with the ones in the Haribo Goldbär Left Without Jingle the results demonstrated a significant mean difference for the Haribo sub brand product during the third presentation, $t(25) = 2.42$, $p < .05$.The Haribo Goldbär Left Without Jingle group discovered the sub brand product faster ($M = 4008.71$, $SD = 4183.12$) than the Haribo Goldbär Left Jingle group ($M = 8072.81$, $SD = 4509.96$). The means for the Haribo Goldbär in the first shelf, $t(25) = -.26$, $p > .05$, the Haribo Goldbär in the second shelf, $t(25) = .66$, $p > .05$, the Haribo Goldbär in the third shelf, $t(25) = 1,5$, $p > .05$, the Haribo Happy Cola in the first shelf, $t(19,84) = .51$, $p > .05$, and the Haribo Happy Cola in the second shelf, $t(25) = -.24$, $p > .05$, did not show significant differences. You can see an overview of the Haribo Goldbär Left condition in Figure 6.

Haribo Goldbär on the left, Haribo Happy Cola on the right

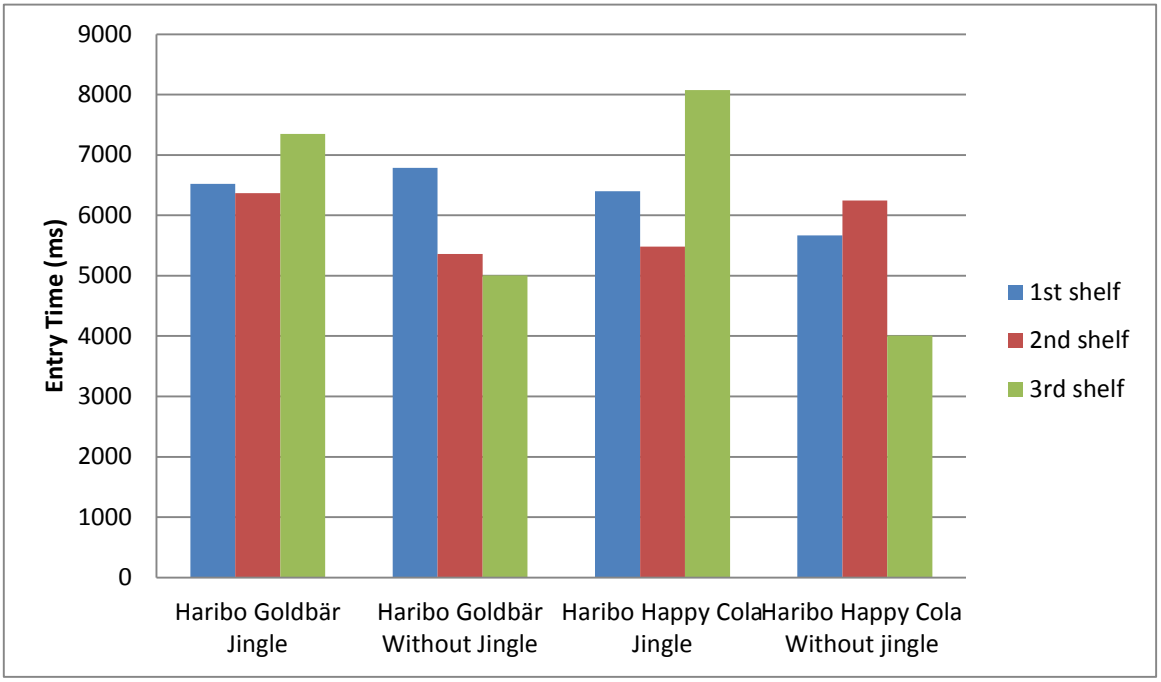

Figure 6. Entry time means during 1st shelf, 2nd shelf and 3rd shelf, comparing the Haribo Goldbär Left Jingle and Haribo Goldbär Left Without Jingle group and the Haribo products.

Comparing the Haribo Goldbär Right Jingle group and the Haribo Goldbär Right Without Jingle group lead to no significant mean differences, $t(21,52) = -.72$, $p > .05$ for the Haribo Goldbär in the first shelf, $t(26) = -1.05$, $p > .05$ for the Haribo Goldbär in the second shelf, $t(26) = 1.14$. $p > .05$ for the Haribo Goldbär in the third shelf, $t(26) = -.41$, $p > .05$ for the Haribo Happy Cola in the first shelf, $t(26) = .97$, $p > .05$ for the Haribo Happy Cola in the second shelf and $t(26) = -.50$, $p > .05$ for the Haribo Happy Cola in the third shelf.

Hypothesis 7. Because I assumed that people who hear the Haribo jingle would not differ from people who did not hear this jingle in the amount of repeated glances, I conducted a repeated measure analysis of variance with revisits as the dependent variable. There was a significant effect of “Shelf” (First, Second or Third Shelf), $F(2, 53) = 3.28$, $p < 0.5$ When comparing the means, the Haribo sub product in the first shelf had more revisits in general than the ones in the second or third shelf, but the people in the Without Jingle condition looked longer at the Haribo flagship product during the third shelf. Because the means of the Haribo flagship product during the third presentation seemed to be very different when contrasting the Jingle condition ($M = 0.24$, SD = 0.51) against the Without Jingle condition ($M = 0.62$, $SD = .51$) I executed an additional t-Test for independent samples. The test showed a significant difference, $t(41.53) = -2.03$, $p < .05$, with the people in the Without Jingle condition gazing at the flagship product more often than the ones in the Jingle condition (see Figure 7). When looking at the Haribo Goldbär Left and Haribo Goldbär Right condition, only the Haribo Goldbär Right Without Jingle group had more revisits ($M = 0.77$, $SD = 0.83$) than the Haribo Goldbär Right Jingle group ($M = 0.27$, $SD = 0.59$), $t(26) = -1.86$, $p < .05$.

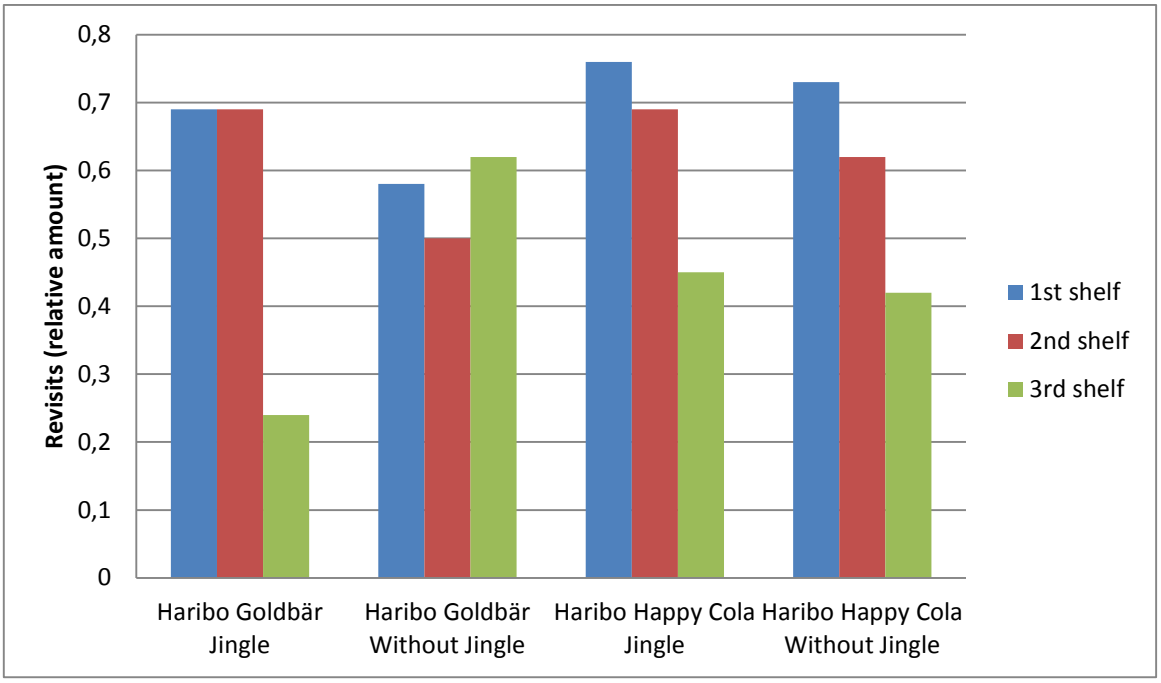

Figure 7. Revisits during 1st shelf, 2nd shelf and 3rd shelf, comparing the Jingle and the Without Jingle condition and the Haribo products.

Summary. Concluding, the results are as follows, in the order of the shelves: In the first shelf, there is a tendency that the Haribo Goldbär Left Jingle group fixated the Haribo sub brand product (Haribo Happy Cola) longer during the first fixation. In the second shelf, the participants in the Jingle condition had a tendency to look longer at the flagship product (Haribo Goldbär). Last but not least, the analysis of the third presentation of the shelf shows tendencies and numerous significant effects in favor for the Without Jingle condition. First, people in the Without Jingle condition looked significantly longer at the flagship product than people in the Jingle condition. They also shifted the gaze back at the flagship product more often than people in the Jingle condition. When comparing the Haribo Goldbär Left Jingle, Haribo Goldbär Left Without Jingle, Haribo Goldbär Right Jingle and Haribo Goldbär Right Without Jingle group, only the Haribo

Goldbär Right Without Jingle looked significantly longer at the flagship product compared to the Haribo Goldbär Right Jingle group. Also, the Haribo Goldbär Right Without Jingle group had a higher revisiting rate towards the flagship product. Furthermore, the Haribo Goldbär Right Without Jingle group had a tendency to have a longer first fixation on the flagship product. The Haribo Goldbär Left Without Jingle group on the other hand shifted the gaze faster to the Haribo sub brand product than the Haribo Goldbär Left Jingle group.

Further Results

In order to see if the Haribo jingle was detectable, I checked how many people recognized it. I expected that the Haribo jingle will not be too obvious during the eye tracking task, however, 21 out of 29 participants named the Haribo jingle. Since the first few seconds of the presentations still might reflect unconscious behavior I decided to look at the first six seconds of each shelf presentation.

First Six Seconds. Examining the first six seconds, there is no significant effect with the repeated measure analysis of variance with dwell time, neither the main effect “Condition” (Jingle or Without Jingle), $F(1, 54) = 0$, $p > .05$, the interaction between “Shelf” (First, Second or Third Shelf) and “Condition”, $F(2, 53) = .45$, $p > .05$, the interaction between “Shelf”, “Position” (Haribo Goldbär Left or Haribo Goldbär Right) and “Condition”, $F(2, 53) = .66$, $p > .05$ the interaction between “Product” (Haribo Goldbär or Haribo Happy Cola) and “Condition”, $F(1, 54) = .19$, $p > .05$, the interaction between “Product”, “Position” and Condition”,

F(1, 54) = .51, *p* > .05 , the interaction between “Shelf”, “Product” and “Condition”, *F*(2, 53) = .35, *p* > .05, nor the interaction between “Shelf”, “Product”, “Position” and “Condition”, *F*(2, 53) = 1.25, *p* > .05, was found. Also, when first fixation duration was the dependent variable, I could not find a significant effect, *F*(1, 54) = .03, *p* > .05 for the main effect “Condition”, *F*(2, 53) = .09, *p* > .05 for the interaction between “Shelf” and “Condition”, *F*(2, 53) = .22, *p* > .05 for the interaction between “Shelf”, “Position” and “Condition”, *F*(1, 53) = .06, *p* > .05 for the interaction between “Product” and “Condition”, *F*(1, 54) = .14, *p* > .05 for the interaction between “Product”, “Position” and “Condition”, *F*(2, 53) = .97, *p* > .05 for the interaction between “Shelf”, “Product” and “Condition”, *F*(2, 53) = 1.37, *p* > .05 for the interaction between “Shelf”, “Product”, “Position” and “Condition”.

Testing the entry time on the other hand leads to a significant interaction between “Shelf”, “Product” and “Condition”, *F*(2, 53) = 3.09, *p* = .05, while the main effect “Condition”, *F*(1, 54) = 1.35, *p* > .05, and the interaction between “Product” and “Condition”, *F*(1, 54) = .42, *p* > .05, were not significant. Looking closer at the means, I conducted a t-Test for independent samples and found a significant mean difference between the Without Jingle condition (*M* = 1412.12, *SD* = 1976.67) and the Jingle condition (*M* = 2573.47, *SD* = 2270.41) during the first shelf presentation when looking at the Haribo sub brand product (Haribo Happy Cola), *t*(53) = 2.01, *p* < .05. Also, there is a nearly significant mean difference between the Haribo Goldbär Left Jingle group (*M* = 2589.43, *SD* = 2463.94) and the Haribo Left Without Jingle group (*M* = 1189.49, *SD* = 1873.35) when analyzing the Haribo sub brand product in the first shelf, *t*(25) =, *p* =.055, and a nearly significant mean difference between the Haribo Goldbär Left Jingle group (*M* = 2075.12, *SD* = 2434.65) and the Haribo Goldbär Left Without Jingle group (*M* =

777.89, *SD* = 1459.59) when analyzing the Haribo flagship product (Haribo Goldbär) in the third shelf, $t(21.52) = 1.69$, $p = .0525$.

Furthermore, when testing revisits as the dependent variable in a repeated measure analysis of variance, there is a significant interaction between "Product" and "Position", $F(1, 54) = 4.41$, $p < .05$. The t-Test did not show any significant mean differences between the Jingle and the Without Jingle condition, neither for the Haribo Goldbär in the first shelf, $t(53) = -.68$, $p > .05$, the Haribo Goldbär in the second shelf, $t(32.58) = -1.21$, $p > .05$, the Haribo Goldbär in the third shelf, $t(42.82) = -.68$, $p > .05$, the Haribo Happy Cola in the first shelf, $t(36.86) = -1.15$, $p > .05$, the Haribo Happy Cola in the second shelf, $t(38.39) = 1.41$, $p > .05$, nor for the Haribo Happy Cola in the third shelf, $t(53) = .95$, $p > .05$.

Ratings of the Products. Additionally, I checked the ratings for the Haribo products by conducting a correlation between "Condition" (Jingle or Without Jingle) and the three ratings "Interest", "Positivity" and "Attractiveness", because I wondered if the people who were not exposed to the Haribo jingle liked the Haribo products more than the people who were exposed to the jingle. There was a slight correlation between "Condition" and the "Positivity" rating of the Haribo flaghsip product (Haribo Goldbär) (see Table 2). In order to find out which condition rated the Haribo flagship product more positive, I looked at the frequencies. We can see that people who were not exposed to the Haribo jingle rated the Haribo flagship product more positively than people who were exposed with the jingle (see Table 3).

Table 2

Correlation between the ratings and the condition

	Condition	Attractiveness Goldbär	Interest Goldbär	Positivity Goldbär
Condition	1	0.07	0.13	0.28*
Attractiveness Goldbär	0.07	1	0.82**	0.71**
Interest Goldbär	0.13	0.82**	1	0.81**
Positivity Goldbär	0.28*	0.71**	0.81**	1
Attractiveness Happy Cola	0.08	0.74**	0.85**	0.73**
Interest Happy Cola	0.09	0.63**	0.83**	0.68**
Positivity Happy Cola	0.15	0.55**	0.75**	0.82**

Note. “Attractiveness Goldbär”, “Interest Goldbär” and “Positivity Goldbär” are the ratings of the Haribo flagship product Haribo Goldbär. “Attractiveness Happy Cola”, “Interest Happy Cola” and “Positivity Happy Cola” are the ratings of the Haribo sub brand product Haribo Happy Cola. Numbers marked with * are significant ($p < 0.05$) and numbers marked with ** are highly significant ($p < 0.01$).

Table 3

Frequencies of the rating "Positivity" for the Haribo main product

	Experimental Group (N = 29)		Control Group (N = 26)	
Rating	Frequency	%	Frequency	%
Absolutely not positive	6	20.7	3	11.1
2	2	6.9	2	7.4
3	5	17.2	2	.7.4
4	5	17.2	4	14.8
5	9	31.0	3	11.1
6	1	3.4	8	30.8
Very positive	1	3.4	4	14.8

Discussion

The aim of this study was to show the priming effect of brand related music on visual attention while one does not have any intention to buy anything. According to the spreading activation theory modified by Collins and Loftus (1975), it was expected that brand related music makes the brand more accessible in memory and draws the attention to the brand product. Seidl's (2014) results suggest that the Haribo jingle can draw the attention to Haribo products when people are asked to choose a product. The present study should confirm the priming effect of the Haribo jingle on visual attention but without a choice task. I expected that people who were exposed to the Haribo jingle would look longer at the Haribo products, would fixate the Haribo products longer during the first fixation and would be drawn faster to the Haribo products than people who were not exposed to the Haribo jingle. Especially the flagship product (Haribo Goldbär) should get more attention than the sub brand product (Haribo Happy Cola) when listening to the Haribo jingle. Since there is no choice option, I presumed that there was no difference concerning the repeated glances towards the Haribo products when comparing people who were exposed to the Haribo jingle and the people who were not exposed to the Haribo jingle.

Unfortunately, the Haribo jingle which was played during the eye tracking task was consciously perceived by 21 out of 29 participants. I did not expect that the jingle would be so noticeable but this might explain why participants who were exposed to the jingle did not pay more attention to the Haribo products during the whole eye tracking task than participants who were not exposed to the jingle. As Janiszweski and Wyer (2014) state, people try to correct the influence when they become aware of a possible bias effect. Moreover, according to Brehm's theory of

psychological reactance, people tend to strengthen the attitude which is opposed to an attitude intended by a persuasion, the so-called *Boomerang effect* (Brehm, 1989). This especially occurs when the persuasion is too obvious and when it is subjectively limiting the freedom of choice.

When confirming what the participants thought the intention of the study was, 20 people responded that the study was about the influence of the music although I informed them that it was about visual attention in a shopping context and that the music was just acting as a background noise. Two out of the 20 people mentioned "Priming", but did not explicitly mention that the present study is about the priming effect of music on visual attention. Seeing as so many people mentioned the music, it might be that the participants were suspicious of the music and when they were exposed to the Haribo jingle and later saw the Haribo products, especially during the last presentation, they tried to look somewhere else. At least in the last presentation of the fruit gum shelf the revisits on the Haribo flagship product were significantly lower in the Jingle condition than in the Without Jingle condition and participants in the Jingle condition looked at it a shorter period of time. Also, the Haribo Goldbär Right Jingle group took longer to look at the Haribo sub brand product.

On the other hand, there was a tendency that people who listened to the jingle were looking longer at the Haribo flagship product, but only during the second presentation. During the third presentation they were looking at the flagship product for a shorter period of time than the people who did not hear the jingle before. Maybe the Haribo jingle did indeed influence the visual attention towards the flagship product during the second presentation while in the first presentation the participants might have scanned all products to get an overview

of the shelf. Because they spent enough time on the flagship product during the second presentation, they might have lost interest during the third presentation which might explain why the people who did not hear the jingle before are looking longer at the flagship product than the participants who listened to the jingle. Due to the obvious confrontation with the jingle it is difficult to say if this finding is a priming effect. According to North, Sheridan and Areni (in press), the theory about cognitive priming does not specify if the music needs to be perceived consciously or not. They assumed that the spreading activation theory implied that deliberate processing should activate the associations rather than unconscious processing. However, Dijksterhuis et al. (2005) think that environmental cues strongly affect impulse choices when they are perceived unconsciously. Apart from the priming effect, another explanation of these findings could be that the participants were doing what they thought was expected of them. However, no participant stated that the influence of brand related music on visual attention towards the brand products was the intention of the study, when asked.

Because I hypothesized that there are no differences between the Jingle condition and the Without Jingle condition when it comes to revisits, it is interesting that this is not the case. Although the participants were in a scenario that did not include an intention to buy anything, there are still differences in the amount of revisits during the last presentation. The people who were not exposed to the jingle gazed back more often at the Haribo flagship product than the people who heard the jingle before. Maybe this is because people in the Jingle condition tried to look somewhere else when they became aware of a possible bias effect or they lost interest after looking at the product during the second presentation.

The results also show a positioning effect: There are significant differences and tendencies when comparing the Haribo Goldbär Left condition while the Haribo Goldbär Right condition did not have these differences and vice versa. For example, when the flagship product was on the right (Haribo Goldbär Right condition), people who did not hear the jingle before looked significantly longer at it, had a tendency to fixate it longer and had more revisits during the third presentation than the people who listened to the jingle. When the sub brand product was on the right (Haribo Goldbär Left condition), people who were not exposed to the jingle noticed it faster during the third presentation than people who were exposed to the jingle. Also, the people who were exposed to the jingle had a tendency to fixate the sub product longer during the first presentation when it was on the right. Although changing the visibility of a product through changing the location can influence consumer's attention (Drèze, Hoch, & Purk, 1994), I did not expect that there will be a positioning effect. Nonetheless, the right side seems to get more attention than the left side maybe because one looks at shelves from left to right, like one also reads from left to right. The right product might get more attention because we finished scanning the shelf.

When looking at the first six seconds of each shelf presentation, I did not find results which support my hypotheses. On the contrary, people who did not listen to the jingle before were drawn faster to the sub brand product during the first presentation than people who were exposed to the jingle. Perhaps, in the first six seconds the people who listened to the jingle were already able to regulate their visual attention and to correct a possible bias effect. We can see a significant effect concerning the entry time towards the sub brand product in the first shelf only during the first six seconds.

Another finding of the present study is that people exposed to the Haribo jingle rated the Haribo flagship product significantly less positively than people who did not hear the jingle. This could, again, be explained by the theory of psychological reactance by Brehm (1989). Furthermore, it could be that because the people who were exposed to the Haribo jingle did not look longer on the Haribo products than the people who were not exposed to the Haribo jingle in the last shelf, the preference of the people who were not exposed to the Haribo jingle was influenced. Shimojo, Simion, Shimojo and Scheier (2003) found out that gaze duration is involved in preference formation. Nevertheless, we have to be careful when interpreting the correlation between the condition (Jingle or Without Jingle) and the positive ratings because the correlation was not that high.

Concerning the differences between the Haribo flagship product and the sub brand product, the results suggest that the visual attention towards the flagship product was more affected by the manipulation of the music during the eye tracking task: Comparing only the Jingle and Without Jingle condition without considering the position, a tendency and significant effects were found with the flagship product (dwell time and revisits) therefore I assume that the jingle activated stronger associations with the flagship product than with the sub brand product. If I take the psychological reactance theory by Brehm (1989) as explanation, the people who were exposed to the Haribo jingle might have tried to avoid looking at the Haribo flagship product during the third presentation. Another explanation would be that they lost interest in looking at the Haribo flagship product after looking at it typically longer during the second presentation than people who were not exposed to the jingle.

Practical Implications

Despite the lack of congruent findings in the present study, brand related music seems to influence visual attention. Differences between the Jingle and the Without Jingle condition were found. Moreover, a flagship product seems to be associated more when the brand related music is heard since comparing the Jingle and the Without Jingle condition lead to significant effects and a tendency (dwell time and revisits). For retailers, it is good to know that brand related music can be used to increase the visual attention towards a brand product, especially the flagship product. Although, it is not certain if the visual attention will increase if the music is perceived consciously because the results of this study suggest otherwise. What consumers can learn from these results is that music plays a role in visual attention towards a product.

The results suggest a positioning effect as well: The right product tends to get more attention than the left one, even though both products were located in the lowest shelf. Therefore, positioning products with low sales rate on the right side might help to improve the sales of these products, even if they are located in the lowest shelf.

Limitations and Future Research

We have to keep in mind that this study was conducted in an experimental setting and that the results might not be transferred easily to the field. A field study with a mobile eye tracker would have been more informative but also harder to conduct. What could be improved is the number of facings of the products on the virtual shelves. I used one facing of the products so that the AOI can be

calculated more easily. The visual search is easier with this type of shelves than with the crowded shelves of the super market (Gidlöf et al., 2013).

The sample of this study mostly consisted of students which might be a limitation. The participant number was not that high in the four groups, nevertheless, significant effects were found. Also, I did not consider if the participants like sweets and if they are vegans or not because the number of vegans and people who do not like sweet is small: Two people were vegans, and two people rated that they never eat sweets.

To get a clearer picture of these findings, another study is needed. This time the jingle should be subliminal in order to exclude the theory of psychological reactance by Brehm (1989) and a possible demand effect as explanations. If there are more jingles played during the eye tracking task, the results might be different. According to Dijksterhuis et al. (2005), the influence of environmental cues is strong when they are perceived unconsciously, therefore the next study's goal should be to play a subliminal jingle. Furthermore, it would be more informative to compare the flagship product, the sub brand product and another brand product so that we can determine if the flagship product gets more attention than the sub brand product which in turn should get more attention than another brand product.

For future research it would be interesting to compare the visual attention of vegans or vegetarians towards non vegan or non vegetarian food products and the attention of people who would eat those products while a music related to this kind of products is played. Also, future research could be about other product categories like electronic devices and other brands to examine. Since electronic devices are more expensive and usually not bought every day, they normally get more involvement, therefore the visual attention plays a crucial role.

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Appendix

First Questionnaire

In the first questionnaire, the demographic questions were asked at the beginning. The age could be filled in, the gender could be answered by choosing “male” or “female”, the highest education could be answered by choosing “compulsory education”, “matriculation”, “apprenticeship”, “university education” or “other”, the occupation could be answered by choosing “self-employed”, “employee”, “home keeper”, “apprentice”, “student”, “pupil or “other” and for students, the question about the current semester should be filled in. Then, current hunger and thirst were measured, each on a Likert scale from 1 to 9 with 1 being the least hungry and least thirsty and 9 being very hungry and very thirsty, and with questions about the last food intake and last drink consumption which could both be answered by choosing “in the last hour”, “in the last three hours”, “in the last six hours” or “not today”.

Herzlich Willkommen und vielen Dank für Ihre Teilnahme!

Diese Studie wird im Rahmen zweier Masterarbeiten im Arbeitsbereich für Angewandte Sozialpsychologie der Universität Wien durchgeführt. Es ist daher wichtig, dass Sie alle Aufgaben gewissenhaft bearbeiten!

Die Studie dient ausschließlich wissenschaftlichen Zwecken. Ihre Angaben werden vertraulich behandelt und anonymisiert ausgewertet, so dass keine Rückschlüsse auf Ihre Person möglich sind.

Die Teilnahme an der Studie ist freiwillig und kann jederzeit ohne Angabe von Gründen abgebrochen werden. Wenn Sie damit einverstanden sind, klicken Sie bitte auf "Weiter".

Alter:

Geschlecht

- ○ männlich
- ○ weiblich

Schulabschluss:

- ☐ Pflichtschulabschluss
- ☐ Matura
- ☐ Lehre
- ☐ Hochschulstudium
- ☐ Sonstiges

Beruf / Tätigkeit:

- ☐ Selbständige/r
- ☐ Angestellte/r
- ☐ Hausfrau/-mann
- ☐ Auszubildende/r
- ☐ Student/in
- ☐ Schüler/In
- ☐ Sonstiges

In welchem Semester sind Sie (falls StudentIn; seit Studienbeginn)?

Weiter

universität wien

Wie hungrig fühlen Sie sich im Moment?

nicht hungrig 1	2	3	4	5	6	7	8	sehr hungrig 9
○	○	○	○	○	○	○	○	○

Wie durstig fühlen Sie sich im Moment?

nicht durstig 1	2	3	4	5	6	7	8	sehr durstig 9
○	○	○	○	○	○	○	○	○

Wann haben Sie das letzte Mal etwas gegessen?

- ○ in der letzten Stunde
- ○ in den letzten 3 Stunden
- ○ in den letzten 6 Stunden
- ○ heute noch gar nicht

Wann haben Sie das letzte Mal etwas getrunken?

- ○ in der letzten Stunde
- ○ in den letzten 3 Stunden
- ○ in den letzten 6 Stunden
- ○ heute noch gar nicht

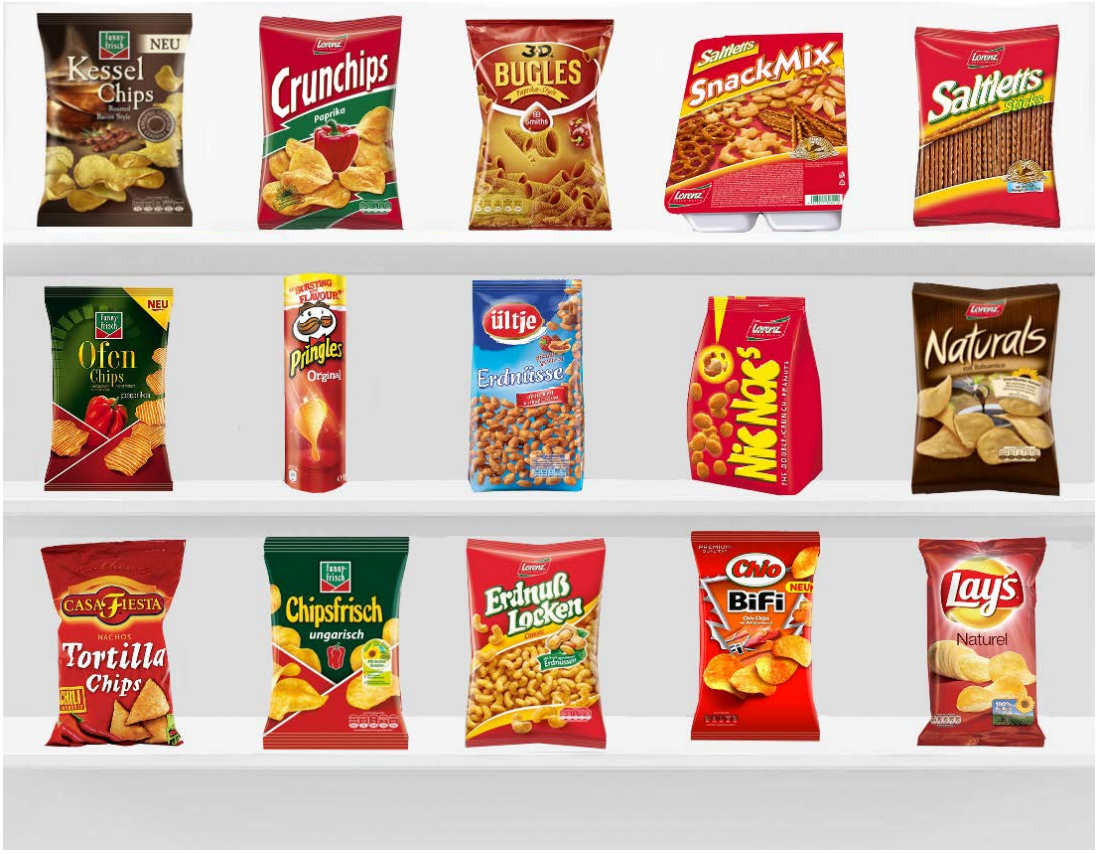
Weiter

universität wien

Vielen Dank! Melden Sie sich nun bitte bei dem/der Versuchsleiter/-in.

Eye Tracking Task Shelves

Shelf with care products (test shelf).



Shelf with chips (1st shelf).

Shelf with beverage (2nd shelf).

Shelf with instant food (3rd shelf).

Shelf with fruit gums (4th shelf for the Haribo Goldbär Left Jingle and the Haribo Goldbär Left Without Jingle group).

Shelf with fruit gums (4th shelf for the Haribo Goldbär Right Jingle and the Haribo Goldbär Right Without Jingle group).

Shelf with washing products (5th shelf).

Second Questionnaire

The second questionnaire starts with questions about the music played during the eye tracking task: First, participants have to fill in if the music reminds them of anything, then it is asked which music title they remember. Afterwards, questions about the emotional state during the eye tracking task, about the ratings of the products (Attractiveness, Interest, Positivity) that appeared in the eye tracking task along with questions about the consumption and the advertisements of these products, the buying impulsiveness scale (Rook & Fisher, 1995; e.g., “I often buy things spontaneously”), questions about eating habits and finally a question about the intention of the study are asked.

Emotional state. The emotional state during the eye tracking task is determined using 10 items (e.g. “excited – calm”). Each item has 7 scale points,

with the first 3 counting to the left pole and the last 3 counting to the right and opposite pole. The 4th scale point is considered as neutral. The items are as follows: “Vexed – cheerful”, “discontent – content”, “unwell – well”, “unhappy – happy”, “tense – relaxed”, “excited – calm”, “furious – placid”, “nervous – numb”, “awake – tired”, “agitated – tranquil”.

Rating of the products. Three questions are used to measure the ratings of the products. First, it is asked how attractive the product is, then, how interesting the product is perceived, and last, how positive the product is perceived. Each question can be answered using a 7-point Likert scale with 1 being the least attractive, interesting and positive. Following products are rated: *Funny Frisch Kesselchips* (potato chips), *Fanta* (orange flavoured soft drink), *Vösslauer prickelnd* (carbonated water), *Knorr Frühlingssuppe* (instant soup), *Maggi Gebratene Schinken-Nudeln* (instant noodles), *Maggi Asia Gebratene Nudeln Ente* (instant noodles), *Haribo Goldbären* (fruit gums, Haribo flagship product), *Haribo Happy Cola* (fruit gums, Haribo sub brand product), *Katjes Yoghurt-Gums* (yoghurt gums), *Perwoll* (washing agent), *Weißer Riese* (washing agent).

Consumption of the products. Additionally, it is asked if the product was consumed before. If the answer is no, the next questions are not relevant. Next, it is asked how often the product was bought in the last 3 months (“never”, “rarely”, “sometimes”, “often”, “very often”), how much the participants enjoy buying the product in general from 1 to 7 (1 being the most negative and 7 being the most positive) and how good the product tastes (in case of food products), from 1 to 7 (1 being the least tasty and 7 being very tasty) or how good the product washes clothes (in case of the washing agents).

*Advertisements of the product*s. Two questions ask the television consumption, “How often did you see a commercial of this brand of this product in your childhood?” and “How often did you see a commercial of this brand of this product in the last 5 years?”. Both can be answered by choosing “never”, “rarely”, “sometimes”, “often” or “very often”. After that, it is asked if the slogan of this brand is known. Either the slogan of the brand is known, the advertisement is known but the slogan cannot be remembered or the slogan is not known. If the answer is yes, one is asked to name the slogan.

Buying Impulsiveness Scale. Also, the buying impulsiveness scale (α = .889 with the outlier, α = .891 without the outlier) by Rook and Fisher (1995) is used. This scale measures the buying impulsiveness, a tendency to buy things spontaneously. Nine items with a 5-point Likert scale (“strongly disagree” to “strongly agree”) determine the buying impulsiveness, the item number 8 has to be reversed. The items are: “I often buy things spontaneously”, ““Just Do It” describes the way I buy things, I often buy things without thinking”, ““I see it, I buy it” describes me”, ““Buy now, think about it later” describes me”, “Sometimes I feel like buying things on the spur of the moment”, “I buy things according to how I feel at the moment”, “I carefully plan most of my purchases”, “Sometimes I’m a bit reckless about what I buy”.

Eating Habits. Also, it is asked if the participants are vegan and if they are vegetarian. Both questions can be answered by choosing “Yes” or “No”. Following, it is asked “How often do you eat meat?” and “How often do you eat sweets?”, both can be answered by choosing “never”, “once per month”, “once per week”, “many times a week” or “daily”.

Erinnern Sie sich bitte nun an die Musik, die während der Regaldarstellungen gespielt wurde.

Woran haben Sie die Musiktitel erinnert?

Können Sie sich an einige der vorherigen Musiktitel erinnern? Wenn ja, welche?
(Es reicht auch, wenn Sie den Titel beschreiben oder einen Satz aus dem Lied ungefähr angeben.)

Weiter

Bitte kreuzen Sie nachfolgend an, wie Sie sich während des virtuellen Einkaufs gefühlt haben.

	3	2	1	0	1	2	3	
verärgert	○	○	○	○	○	○	○	vergnügt
unzufrieden	○	○	○	○	○	○	○	zufrieden
unwohl	○	○	○	○	○	○	○	wohl
unglücklich	○	○	○	○	○	○	○	glücklich
unentspannt	○	○	○	○	○	○	○	entspannt
aufgeregt	○	○	○	○	○	○	○	ruhig
rasend	○	○	○	○	○	○	○	träge
nervös	○	○	○	○	○	○	○	abgestumpft
wach	○	○	○	○	○	○	○	schläfrig
erregt	○	○	○	○	○	○	○	unerregt

Weiter

Im Folgenden werden Ihnen einige Produkte zur Bewertung präsentiert, bewerten Sie diese bitte spontan aus dem Bauch heraus.

Weiter

universität wien

Bitte geben Sie an, wie attraktiv das Produkt auf Sie wirkt.

sehr unattraktiv ○ ○ ○ ○ ○ sehr attraktiv

Bitte geben Sie an, wie interessant das Produkt für Sie wirkt.

sehr uninteressant ○ ○ ○ ○ ○ sehr interessant

Bitte geben Sie an, inwieweit Sie das Produkt als positiv einschätzen.

überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

Bitte geben Sie an, wie attraktiv das Produkt auf Sie wirkt.

sehr unattraktiv ○ ○ ○ ○ ○ sehr attraktiv

Bitte geben Sie an, wie interessant das Produkt für Sie wirkt.

sehr uninteressant ○ ○ ○ ○ ○ sehr interessant

Bitte geben Sie an, inwieweit Sie das Produkt als positiv einschätzen.

überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

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überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

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überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

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Weiter

universität wien

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Bitte geben Sie an, inwieweit Sie das Produkt als positiv einschätzen.

überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

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Weiter

universität wien

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Bitte geben Sie an, inwieweit Sie das Produkt als positiv einschätzen.

überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

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Weiter

universität wien

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Weiter

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überhaupt nicht positiv ○ ○ ○ ○ ○ sehr positiv

Weiter

universität wien

Nun möchten wir Ihnen noch ein paar Fragen zu Ihrem Konsumverhalten bezüglich einiger Produkte stellen. Bitte beantworten Sie diese möglichst spontan und nehmen Ihren durchschnittlichen Konsum als Richtwert.

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

Wie gut schmeckt Ihnen dieses Produkt (falls Sie es schon probiert haben)?

gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

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gar nicht sehr gut

Weiter

universität wien

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ja nein

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nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

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gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

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sehr ungerne sehr gerne

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gar nicht sehr gut

Weiter

universität wien

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Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

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Weiter

universität wien

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Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

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Wie gut schmeckt Ihnen dieses Produkt (falls Sie es schon probiert haben)?

gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie manchmal selten häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

Wie gut schmeckt Ihnen dieses Produkt (falls Sie es schon probiert haben)?

gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

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gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal konsumiert?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

Wie gut schmeckt Ihnen dieses Produkt (falls Sie es schon probiert haben)?

gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal verwendet?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

Wie gut reinigt Ihrer Meinung nach dieses Produkt die Wäsche (falls Sie es schon verwendet haben)?

gar nicht sehr gut

Weiter

universität wien

Haben Sie dieses Produkt schon einmal verwendet?

ja nein

Wie häufig haben Sie dieses Produkt in den letzten 3 Monaten gekauft?

nie selten manchmal häufig sehr häufig

Wie gerne kaufen Sie dieses Produkt allgemein?

sehr ungerne sehr gerne

Wie gut reinigt Ihrer Meinung nach dieses Produkt die Wäsche (falls Sie es schon verwendet haben)?

gar nicht sehr gut

Weiter

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Es folgen nun Fragen zu den Werbungen der Produkte beziehungsweise der Marken.

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Wie häufig haben Sie in Ihrer Kindheit eine Fernsehwerbung zur Marke dieses Produkts gesehen?

○ nie ○ selten ○ manchmal ○ häufig ○ sehr häufig

Wie häufig haben Sie in den letzten 5 Jahren eine Fernsehwerbung zur Marke dieses Produkts gesehen?

○ nie ○ selten ○ manchmal ○ häufig ○ sehr häufig

Kennen Sie einen Werbespruch der Marke dieses Produkts?

○ ja
○ ich kenne die Werbung, mir fällt aber gerade der Werbespruch nicht ein
○ nein

Wenn ja, welchen Werbespruch kennen Sie dazu?

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Jetzt folgen ein paar Fragen zu Ihrem generellen Konsumverhalten und Ihren Essgewohnheiten.

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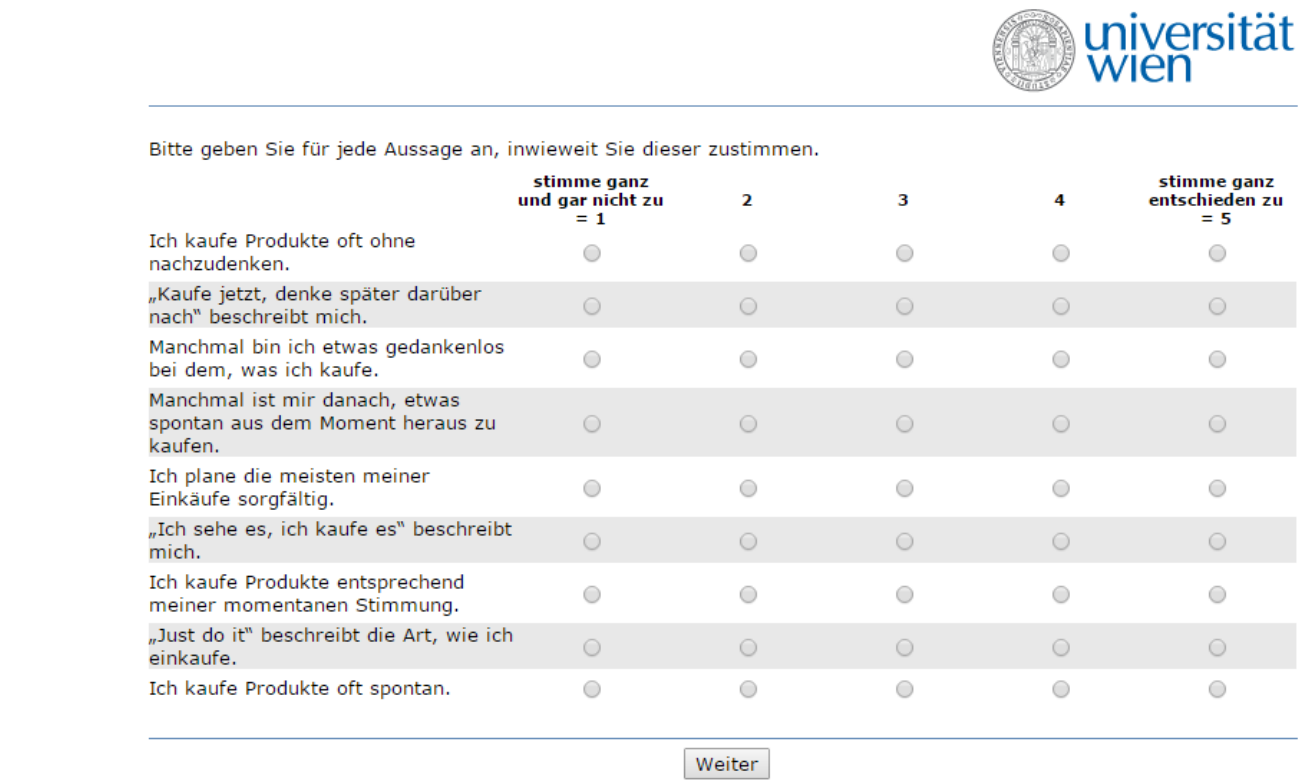

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Bitte geben Sie für jede Aussage an, inwieweit Sie dieser zustimmen.

	stimme ganz und gar nicht zu = 1	2	3	4	stimme ganz entschieden zu = 5
Ich kaufe Produkte oft ohne nachzudenken.	○	○	○	○	○
„Kaufe jetzt, denke später darüber nach" beschreibt mich.	○	○	○	○	○
Manchmal bin ich etwas gedankenlos bei dem, was ich kaufe.	○	○	○	○	○
Manchmal ist mir danach, etwas spontan aus dem Moment heraus zu kaufen.	○	○	○	○	○
Ich plane die meisten meiner Einkäufe sorgfältig.	○	○	○	○	○
„Ich sehe es, ich kaufe es" beschreibt mich.	○	○	○	○	○
Ich kaufe Produkte entsprechend meiner momentanen Stimmung.	○	○	○	○	○
„Just do it" beschreibt die Art, wie ich einkaufe.	○	○	○	○	○
Ich kaufe Produkte oft spontan.	○	○	○	○	○

Weiter

Buying Impulsive Scale (Rook & Fisher, 1995). Reliability without the outlier is $\alpha = .891$, with the outlier it is $\alpha = .889$.

Bitte wählen Sie das Zutreffende aus.

Sind Sie Veganer/in?

- ja
- nein

Sind Sie Vegetarier/in?

- ja
- nein

Wie oft essen Sie Fleisch?

- nie
- einmal im Monat
- einmal pro Woche
- mehrmals pro Woche
- täglich

Wie oft essen Sie Süßigkeiten?

- nie
- einmal im Monat
- einmal pro Woche
- mehrmals pro Woche
- täglich

Weiter

Worum glauben Sie geht es in dieser Studie?

Weiter

Vielen Dank! Melden Sie sich nun bitte bei dem/der Versuchsleiter/-in.

Curriculum vitae

Personal data

Name	Birgit Schachermayr
Date & place of birth	September 17th 1991 in Linz, Austria
Nationality	Austria

Work Experience

since October 2014	**SIWACHT GmbH, Vienna**
	Part-Time as museum security guard
March – July 2014	**move-ment GmbH, Vienna**
	Internship; Project “Early Intervention 50+”
July 2012 & 2013	**Fa. Tann Papier, Traun**
	goods receiving department
August 2011	**Land OÖ – sozialpädagogisches Jugendwohnheim Wegscheid, Linz**
	advisor of adolescents
August 2010	**AUVA, Linz**
	postal department
July 2008	**Magistrat Linz**
	Project “Sauberes Linz”

Education

since 2013	MSc Psychology (focus: Applied Psychology), University of Vienna
2010 – 2013	BSc Psychology, University of Vienna

2002 – 2010	BRG Ramsauer, Linz
	(lower grade: music/arts; upper grade: language class)
1998-2002	VS 47, Linz

Additional Skills

Courses

2010	Driving license B
2007	Workshop for tutors of first graders
2004	Typewriting course

Languages	German (mother tongue), English (fluent), French (advanced), Russian (beginner), Japanese (advanced)
IT-Skills	Microsoft – Word, Excel, Powerpoint; SPSS