

Nudging alcohol-free beer in the supermarket

Master thesis

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NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

Abstract

Objective: The worldwide consumption of alcohol is increasing and interventions to decrease this phenomenon are necessary. This study investigated the influence of an availability nudge of alcohol-free beer (AFB) in the supermarket. **Method:** This nudge consisted of a stand at the beginning of the supermarket on which alcoholic beers (AB's), AFB's or soda's were placed, each during one week. The study consisted of two parts; the first part (S1) measured 45 participants' gaze by using an eye-tracker, the second part (S2) analysed the differences in sales figures. **Results:** People in the AFB-condition were expected to (1.) look significantly more often at other AFB's inside the supermarket and (2.) would buy significantly more AFB's, compared to people in the other conditions. The data did show a trend in this direction. However, the data were not significant and therefore the hypotheses could not be supported. Nevertheless, a significant relationship was found between looking at other AFB's in the supermarket and buying AFB's. **Conclusion:** A possible reason for the insignificant results is that many consumers did not walk past the nudge. In this way, the nudge could not influence the decision-making. The place of the nudge should be taken into account in future studies.

Keywords: *alcohol-free beer; nudging; supermarket consumption; eye-tracking.*

Introduction

In 2016, the worldwide yearly consumption of pure alcohol was equal to 6.4 litres per person aged 15 and older. In that year, worldwide 3 million people died because of harmful alcohol use (World Health Organization, 2018). In 2017, the average yearly consumption among Dutch people was even 7 litres (Nederlands Instituut voor Alcoholbeleid STAP, 2019). Alcohol consumption increases the risk of cancer, cardiovascular diseases, cirrhosis of the liver, and many more diseases (Rehm et al., 2009). It also has a negative impact on the well-being and health of people around the drinker (World Health Organization, 2018) and results in immense costs for society. For instance, in 2006 the consequences of alcohol consumption yielded the U.S. 250 billion dollar (Sacks, Gonzales, Bouchery, Tomedi & Brewer, 2015). Additionally, it is predicted that the average yearly alcohol consumption per adult will increase to 7.6 litres in 2030 (Manthey et al., 2019). Due to the aforementioned amounts of consumption and its fatal consequences, it is important to find optimal interventions to reduce alcohol consumption.

Sale locations

Nederlands Instituut voor Alcoholbeleid STAP (2019) estimated around 72.000 locations in the Netherlands where one can buy alcoholic products. Among those, 32.000 are catering industries, 6.300 are supermarkets and night stores and 2.850 are liquor stores. Although having the most selling points, in 2015 only 26.3% of the alcohol was sold in the catering industry, while 57.3% in the supermarket (Nederlands Instituut voor Alcoholbeleid STAP, 2019). With even more than half of the alcohol sales, the supermarket seems to be a crucial location to consider interventions to decrease alcohol consumption.

Existing interventions

Many interventions to reduce and/or stop alcohol consumption already exist. For instance, **limiting the availability** of alcoholic products has been proven to affect alcohol consumption greatly. Selling less alcoholic products or selling them on restricted days seems like a solution, although there probably will be resistance from the alcohol industry and proponents of the free market (Middleton et al., 2010). In general, **increasing the alcohol tax** by 10% results in 5% less drinking (Wagenaar, Tobler, & Komro, 2010). However, the critical review of Nelson and McNall (2016) showed that effects were only visible in certain subpopulations, older and

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unemployed adults, and not in all circumstances. Besides these mixed effects, using financial incentives could give rise to moral concerns (Marteau, Ashcroft & Oliver, 2009). Focusing more on the psychological mechanisms, when **providing health information** people are informed about healthy and unhealthy behaviour, for example by using warning labels ('The abuse of liquor is harmful to health'). Labelling alcoholic products with information about the product risks has been found to make people more aware of the risks, but did not influence the actual drinking behaviour (Shemilt, Hendry & Marteau, 2017). **Serving beverages in smaller portions** has resulted in a 28.6% to 33.3% reduction in consumption, without compensation behaviour afterwards (Kersbergen, Oldham, Jones, Field, Angus & Robinson, 2018). Selling smaller units of alcohol in the supermarket would be a good solution to reduce alcohol consumption. However, this is difficult to implement within the alcohol industry. It is highly likely that people will display psychological resistance to smaller sizes, due to authorities deciding the selling sizes and the possible absence of other alternatives (Kersbergen et al., 2018).

Unconscious processing

Considering the limited effectiveness of aforementioned interventions, it is noteworthy to look for other interventions to apply. Alcohol consumption is influenced by many contextual, individual, and interpersonal factors, which can be automatic or unconscious (Young-Wolff, Enoch & Prescott, 2011). Unconscious processing is based on the Dual System Theory (Kahneman, 2003). According to this theory, people make decisions based on two systems: system one being automatic, unconscious and fast, and system two being effortful, monitored and slow. Behaviour that occurs more often, like grocery shopping, will be formed into habits. These habits will rely on system one; they are less effortful and more automatically processed. Automatic processes evoke impulsive reactions, and make it probable that consumers maintain their behaviour; drinking alcohol (Kahneman, 2003). Even with the intention to display a specific consumer behaviour (abstaining), unconscious processes reduce this intention according to the intention-behaviour gap (Torma, Aschemann-Witzel & Thøgersen, 2018).

An important unconscious factor within alcohol consumption is the **social norm**; one's alcohol consumption is highly correlated to the alcohol consumption of the people in one's social network (Rosenquist, Murabito, Fowler & Christakis, 2010). This effect is bidirectional: the social norm can not only stimulate drinking alcohol, but can also stimulate abstaining from it.

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According to a meta-analysis of Prestwich et al. (2016) changing this social norm is proven effective to reduce alcohol consumption.

The **attitude** towards alcohol(-free) beverages is also an important unconscious factor; attitudes towards alcoholic beverages were positively correlated with consumption and binge drinking, the reverse was found for the attitude towards alcohol-free beverages (Roek, Spijkerman, Poelen, Lemmers & Engels, 2010). As shown in Figure 1, Van der Zwaluw, Kleinjan, Lemmers, Spijkerman & Engels (2013) found that the attitude towards binge drinking and alcohol-free beverages at one moment (T1) did not affect binge drinking behaviour after six months (T2). Besides, binge drinking at T1 did affect the attitude towards binge drinking at T2. This suggests that the attitude towards drinking alcohol(-free) beverages is adjustable by making people change their drinking behaviour.

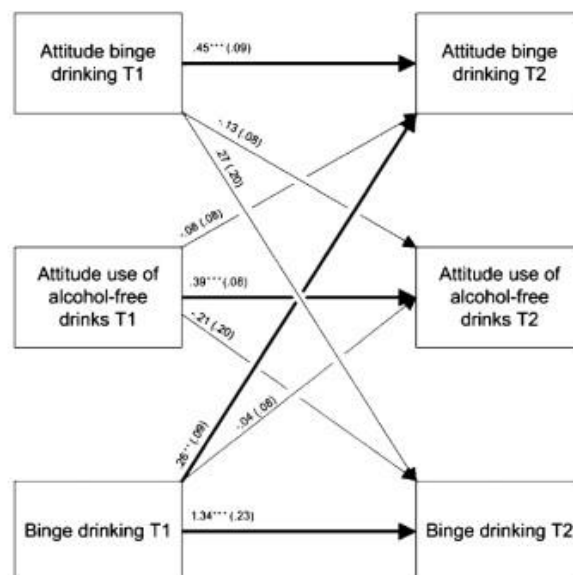


Figure 1. Longitudinal relationships between attitudes and consumption (Van der Zwaluw et al., 2013).

Nudging

As unconscious processes such as social norm and attitude determine alcohol consumption, nudging might be a good solution as an alternative for aforementioned interventions. **Nudging** means changing the choice architecture in such a way that it alters people's behaviour, without forbidding any alternative options or creating financial incentives. In this way, a modification in the environment makes the consumers' behaviour more predictable (Thaler & Sunstein, 2008). Nudging has already been proven effective in promoting healthier choices of food and non-alcoholic beverages (Wilson, Buckley, Buckley & Bogomolova, 2016).

Different methods of nudging exist, like changing the default option, changing salience, using social norms, and changing the physical environment (Thaler & Sunstein, 2008). In the current study the latter one is used with the help of an **availability nudge**. Herein, people are more likely to perform a certain behaviour (buying alcohol-free beverages) because they are unconsciously reminded of this behaviour by a nudge that is more 'available', thus the behaviour

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will come to mind earlier. This availability can be reached by object placement, by for instance putting the alcohol(-free) beverage more closely toward the consumer. An example of this nudge is that products are placed on eye level to gain more attention (Chandon, Hutchinson, Bradlow & Young, 2009), and are therefore will be sold more likely (Van Herpen, Van Nierop & Sloot, 2012).

Availability nudges with regard to object placement have already been proven effective in other health behaviours. According to the systematic review of Bucher et al. (2016) food placement correlates positively with the probability to choose that specific food. Also, non-sugar sweetened beverages were chosen above sugar sweetened beverages when they were placed on eye level and at the front of the store in a computational corner store (Wong et al., 2015).

Knowing that the placement of food and non-alcoholic beverages has an effect on consumers' behaviour, it is expected that such an availability nudge could also promote people to purchase alcohol-free beverages instead of alcoholic ones, and consume less alcohol as a result. In contrast to most of the earlier mentioned interventions, nudging could be used to reduce alcohol consumption unconsciously. This way, changes in the environment could influence the consumers' decision (Kersbergen et al., 2018). Where many earlier interventions did focus on reducing alcohol or substituting it by soda or water, in this study the focus will be on unconsciously substituting alcoholic drinks by alcohol-free beverages instead.

Alcohol-free beer

Alcohol-free beverages include (craft) beers and wines that lack alcohol or contain 1.2% at maximum (Van Ginneken, 2017). This study will focus on alcohol-free beer (AFB). In the Netherlands, sales of AFB have been grown with 285% from 2010 to 2017 (Nederlandse Brouwers, 2018). However, many people prefer alcoholic beer (AB) above AFB. For instance, in the study of Vasiljevic, Couturier & Marteau (2018) participants rated beverages with lower alcohol percentage as less appealing than beverages with a higher alcohol percentage. As mentioned before, the attitude towards alcohol consumption is influenced by earlier consumption behaviour (Van der Zwaluw et al., 2013). This suggests that attitude towards AFB's could be influenced by consuming AFB's. The current study tries to unconsciously change the alcohol purchases of supermarket consumers by an availability nudge, and thereby reduce the

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consumption of alcohol. Because of its large sales of alcohol(-free) products the supermarket is a suitable place to apply this nudge.

Visual attention

It is important to know what factors influence consumers to choose a certain product in the supermarket. From earlier studies concerning food stimuli at the supermarket, it is known that visual attention is an important predictor of consumption (Gidlöf, Anikin, Lingonblad & Wallin, 2017; Wästlund, Shams & Otterbring, 2018). Visual attention is defined as “the processes involved when visual information is filtered and selected, so that it can be processed more deeply and reach awareness” (Wästlund et al., 2018). This attention is strongly influenced by the number of shelf facings. Thus, more and longer visual attention increases the sale of the product and the evaluation brand (measured by eye-tracking; Chandon et al., 2009; Gidlöf et al., 2017). Gidlöf et al. (2017) found that visual attention for food products is influenced by *visual saliency* and *option quality*. Visual saliency is the level in which a product stands out from the surrounding products. Option quality defines the level of how well the product meets the preferences of the consumer.

Research question

Theory suggests that AFB sales in the supermarket could be raised by making this product more attentionally available. This was tested for by putting AFB's on a supermarket stand, which consumers are likely to walk past. The following research question was tried to be answered through the two following hypotheses:

What is the effect of an availability nudge of alcohol-free beer (AFB) at the supermarket on purchasing alcohol?

Hypothesis 1 (H1): Consumers will focus their visual attention as measured by eye-tracking significantly more on other AFB's, when they are nudged with an availability nudge of AFB than when they are not nudged.

H1₀: Looking at other AFB's in the supermarket is independent of the condition a participant is in ($\mu_1 = \mu_2 = \mu_3$).

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H1_a: Participants in the AFB-condition will look significantly more often at other AFB's in the supermarket than participants in the other conditions ($\mu_1 < \mu_2 > \mu_3$).

Hypothesis 2 (H2): Consumers will buy AFB's more often when they are nudged with an availability nudge of AFB's than when they are not nudged.

H2_o: Buying AFB's in the supermarket is independent of the condition a consumer is in ($\mu_1 = \mu_2 = \mu_3$).

H2_a: Consumers in the AFB-condition will buy AFB's in the supermarket significantly more often than consumers in the other conditions ($\mu_1 < \mu_2 > \mu_3$).

Method

The current study consisted of two parts: the first part (S1) tested H1 and H2, measuring participants' gaze using an eye-tracker and the outcomes of the questionnaire. The second part (S2) did not make use of participants and tested H2 by analysing sales figures.

Design

This study was conducted with a mixed between-group design. The study was done at the supermarket *Albert Heijn*, at the Hooigracht in Leiden from April 8 to April 28 2019. Inside the supermarket a product ('the nudge') was placed on a stand (like the bottles in Figure 2). No discount was offered on the nudges during the entire study period. Other products, such as meat (substitutes) or appetizers, surrounded the nudge within the stand. During the first week (AB-condition) bottles of Heineken (5% alc.) were placed on the stand, bottles of Heineken 0.0 during the second week (AFB-condition) and bottles of Spa Fruit during the last week (control-condition; see Figure 3). The brand Heineken was chosen because there was no discount offered on these products during the whole study period. Besides, in the Netherlands Heineken is the greatest AFB-provider (Hentzepeter, 2018).



Figure 2. Stand of the nudge.



Figure 3. Presented bottles of Heineken (AB), Heineken 0.0 (AFB) and the Spa Fruit (control-product).

According to the manager, a lot of the supermarket's visitors are students. During this study, there were, in general, no exam periods, breaks or big events with regard to the students of the University of Leiden. However, during the last two weeks some special days occurred: First Easter Day during the AFB-condition, Second Easter Day and King's Day during the control condition. Trying to influence the data as little as possible, the control-condition was planned in this last week.

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Participants

Participants were recruited among supermarket visitors with a minimum age of 18. Another inclusion criterion was understanding and speaking Dutch, so the interpretation of the task could differ as minimal as possible among participants. In general, visitors were addressed when they were alone, so they were more likely to participate. Also, social influences of another person could have a smaller effect on the results. Lastly, people wearing glasses were, in general, not asked to participate, because the data from the eye-tracker would then be difficult to acquire. The recordings were made on two days of the week; Wednesday and Friday evening, and only during the first week on a Saturday. Within each condition one Bol.com-coupon with the amount of €20,- was raffled among the participants.

Procedure

Participants were recruited at the entrance of the supermarket (between the two arrows in Figure 4), or at the freezer (red circle) when the previous participant was still filling in the questionnaire. The researcher revealed that the study concerned consuming behaviour and the way people observe products within the supermarket, with the help of an eye-tracker. Thus, nothing was mentioned about the nudge or the interest in AFB's.

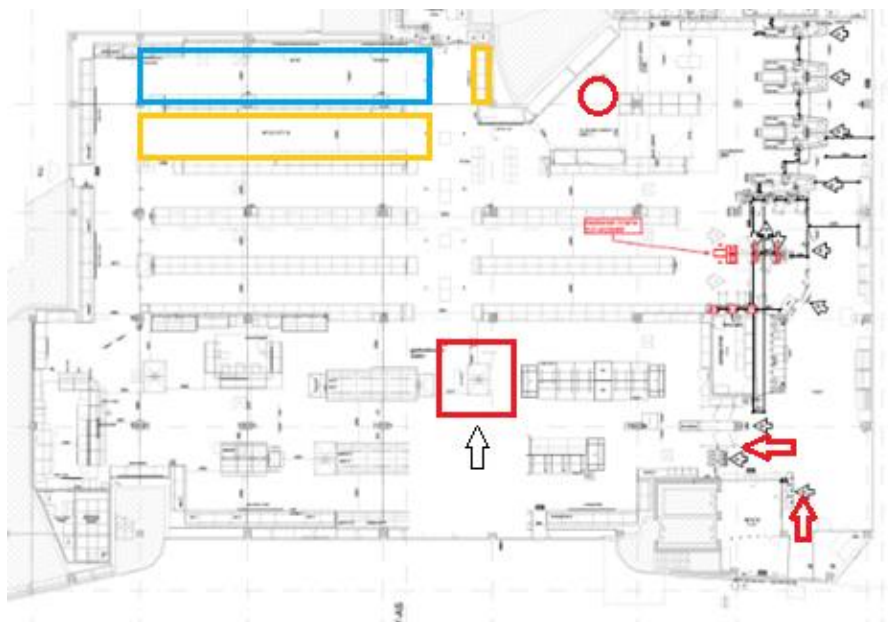


Figure 4. Plan of Albert Heijn Hooigracht. **Arrows:** Entrance of the supermarket. **Square:** Stand of the nudge. **Yellow:** Shelves containing AB's and AFB's. **Blue:** Shelves containing soda's. **Circle:** Place where participant was received and filled in the questionnaire.

When a participant decided to join the study, he or she was asked to sign the informed consent (see Appendix A). After signing, the eye-tracker glasses were fitted onto the participant's head and then it was calibrated. Thereafter, the participant was asked to imagine

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having a drink that evening with three friends, of which one is not drinking alcohol, however no reason was given for the abstention. The task was to get some drinks for this evening. Important to keep in mind was to give the exact same task description to every participant (see Appendix B), in order to minimize interpretation differences. Participants were told that they did not have to actually buy these beverages, but instead had to collect products with the intention to buy them. They were instructed to behave in the same manner as they would normally do when shopping. After both repeating the task description and asking if there were any questions left, the participant entered the supermarket and the recording was started.

While the participant was completing the task, the researcher went to the cooler to receive the participant there and stop the recording. Meanwhile, the eye-tracker was removed and the participant was asked to fill in the questionnaire on a laptop, while the researcher was putting back the collected products. After filling in the questionnaire, the participant was thanked and told to be debriefed by email later. This was due to the debriefing possibly influencing the sales figures during the remainder of the study. In total the task took around five to ten minutes, and the questionnaire a total of ten minutes.

This procedure was the same within every condition, besides different products presented on the stand (see Figure 5a-c). Figure 4 shows the locations within the supermarket where AB's, AFB's, and soda's are shown. Within the yellow part AFB's were placed separately from AB's.

Measurements

Within the current study, different measurements assessed the dependent variables (see Table 1). For S1 the eye-tracker and questionnaire were used, and for S2 the sales figures.

Eye-tracker – Participants entered the supermarket wearing eye-tracker glasses (Tobii Pro Glasses). The eye-tracker determined the participant's gaze on distinct objects in the world. This gaze in eye-movement data was analysed in a qualitative way, which gave insight in the attention of the participants (Mele & Federici, 2012). Eye-tracking research can tell about the way consumers process commercial information and can investigate the effects of visual marketing. It is an objective method (contrary to self-report; Chandon et al., 2009). By measuring the gaze of the participant, the eye-tracker measured the variables (1.) walking past nudge, (2.) looking at nudge, (3.) looking at other AFB's, and (4.) buying AFB's.

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Figure 5a. AB-condition.



Figure 5b. AFB-condition.



Figure 5c. Control-condition.

Questionnaire – The questionnaire consists of four parts including: demographics (question 1-4), attitude towards AB's, AFB's and Heineken (question 5-7), the Alcohol Use Disorders Identification Test (AUDIT; question 8-17), and familiarity with both the supermarket and the product (question 18-20). The AUDIT is a short questionnaire detecting hazardous drinking patterns, with outcome scores ranging from 0, indicating a non-drinker, to 40, indicating

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strong alcohol dependence (World Health Organization, 2001). Scores higher than 8 indicate strong likelihood of hazardous alcohol consumption (Saunders, Aasland, Babor, De la Fuente & Grant, 1993). Furthermore, the attitudes were scored on a 10-point scale with the items: unpleasant–pleasant, bad–good, annoying–fun, foolish–wise and drowsy–sturdy (like Roek et al., 2010). Lastly, the questionnaire ended with an open question about the participant’s expectations about the study purpose.

Sales figures – The specific products’ sales figures were requested. This resulted in an overview of how many bottles of Heineken, Heineken 0.0 and Spa Fruit were sold in the past eight weeks, including the three study weeks.

Table 1

Descriptions of the dependent variables.

Variable	Description
Looking at AFB	Did the participant look at other AFB’s on the alcohol-shelf? (yellow area in Figure 4; yes/no)
Walking past nudge	Did the participant walk past the nudge? (yes/no)
Looking at nudge	Did the participant look at the nudge? (yes/no)
Buying AFB	Did the participant intent to buy AFB’s? (yes/no)
AUDIT-score	Total sum of the questions 8-17, ranging from 0-40.
Attitude AB/AFB/Heineken	The participant scored the AB/AFB/Heineken on a scale ranging from 0 (negative) to 10 (positive). The items were: unpleasant–pleasant, bad–good, annoying–fun, foolish–wise and drowsy–sturdy.
Sales Figures	The amount of how many bottles were sold within the three study weeks and the five weeks before.

Statistical Analysis

For S1, the recordings of the eye-tracker were uploaded on SURFdrive. Lost recordings were scored as missing data. Qualitative analyses of the data consisted of watching each recording and coding the following events: walking past nudge, looking at nudge, looking at AFB, and buying AFB (see Table 1). Besides that, remarkable events were annotated. Together with the questionnaire responses, these variables were imported into IBM SPSS Statistics 25 to analyse the data. Double entries were excluded and data $\geq 1SD$ from the mean were defined as

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outlier and excluded if they seemed unreliable. Participants' expectations about the study were analysed to see if these influenced the data. A new variable *AUDIT-score* was created by summing up the scores on the AUDIT-questions. Descriptive data and a correlation table were made to get a general description of the participants. Within the correlations, the variables *AUDIT-score* and attitude *AB/AFB/Heineken* were analysed. The Spearman's rho was used to interpret the correlation, because at least one of the analysed variables was categorical. The Shapiro-Wilk test was provided to check if the assumption of a normal distribution was met. Looking for age differences between conditions a Kruskal-Wallis Test was used.

A frequency table was provided among the variables *walking past AFB* and *looking at AFB* and a significant difference between conditions was tested for (H1). Due to all these variables being categorical, a Chi-Square Test was used when the expected values of the cells were more than five, and the Fishers' Exact Test when they were less than five. The nominal independent variable was *condition* and the nominal (binary) dependent variables were *looking at AFB* and *buying AFB*. Lastly, all remarkable data were described.

Furthermore, using SPSS within S2 outliers among the sales figures were searched for and the descriptive data was provided. The assumptions of normality and homogeneity were checked with the Shapiro-Wilk test and the Levene's F test, respectively. Additionally, the independence of the sample and the right levels of measurement were checked. A One-Way ANOVA-test was performed to analyse whether there was a difference between the conditions (H2). The nominal independent variable was *condition*, the interval dependent variable was *sales figures*.

H2 was tested in two ways: the participant's intention to buy AFB's measured by eye-tracking (S1), and the actual sales figures (S2). Both measurements represented the buying of products, not the actual alcohol consumption. However, S1 measured the buying of any AF and AFB, while S2 only measured the buying of Heineken and Heineken 0.0. Besides, participants in S1 'bought' the products with a specific task description and not just for themselves.

Results

Eye-tracking (S1)

Exclusions

Outliers were examined before the data could be analysed. In total there were 46 participants, 45 eye-tracking recordings and 47 questionnaire responses. One of the recordings was not stored, therefore, was registered as missing. The recordings of two participants started too late, and thus it could not be observed whether they walked past and did look at the nudge or not. These results were registered as missing data concerning the variables *walking by nudge* and *looking at nudge*. Another participant filled in the questionnaire two times. The first response was thought to be the most reliable, thus resulting in excluding of the second. When analysing participants' expectations about the study, it was observed that nobody mentioned something about the nudge, therefore suggesting that their expectations did not influence the results. In the end, this led to an inclusion of 45 participants of which the recordings were connected to the responses on the questionnaire. Each condition consisted of 15 participants. The responses of the participant without recording was used when only the questionnaire was analysed.

Descriptive data

In Table 2 the descriptive data of the participants are shown. The average age is 24.6 (SD = 6.23, [18-54]). Four participants differed ≥ 1 SD from the age mean, but were not excluded because they still met the inclusion criteria. Among the participants there were 25 males and 22 females, who all followed the highest three forms of education.

Table 3 shows the frequencies of gender and education per condition. To see if there were any significant differences in age between the independent conditions, the group data was compared to each other. The assumption of a normal distribution was not met, therefore a Kruskal-Wallis Test was conducted. According to this test, there was no significant age difference between the three conditions ($\chi^2(2) = 1.277, p = 0.528$) with a mean rank age of 24.47 for the AB-condition, 24.63 for the AFB-condition, and 19.90 for the control-condition. These means are quite low, probably because of the high amounts of students among the participants.

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Table 2

Descriptive data of participants.

	Mean	SD
Age	24.6 [18 – 54]	6.23
	Number of participants	Percentage
Sex		
Male	24	53.3
Female	21	46.7
Education		
HAVO/VWO	14	31.1
HBO	21	46.7
WO-doctoral/master	10	22.2

Table 3

Descriptive data per condition.

		Condition			Total
		AF	AFB	Control	
Gender	Male	10	8	6	24
	Female	5	7	9	21
Highest education	HAVO/VWO	5	5	4	14
	HBO	6	8	7	21
	WO-doctoraal/master	4	2	4	10
Mean age		24.47	24.63	19.90	24.6
Total		15	15	15	45

Walking past the nudge

Due to there being no age difference found, further analysis was done on the recordings. H1 tested if *looking at other AFB's* in the supermarket was dependent on the *condition*. First, it is important to notice that not all participants walked past the nudge or looked at it (see Table 4). Within all the 45 recordings, 26 participants walked past the nudge. Of those walking past, half of them put their gaze on the nudge, although some of them looked very short. The gaze was only annotated as 'looking at' when the participant looked at the nudge itself and not at other products inside the box.

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Table 4

Frequency table nudge.

		Walked past nudge	Looked at nudge
Yes	Yes	26	13
	No		13
No		17	-
Total		43	26

Looking at and buying AFB's

A correlation test was applied to see if there was any association between the variables. The association between *condition* and *looking at other AFB's* was not found to be significant. In Table 5 the amounts of looking at other AFB's were set out per condition. Although it is shown that the highest number of participants in the AFB-condition did look at other AFB's, no significant difference was found between conditions according to the Chi-Square Test ($\chi^2(2) = 5.101, p = .109$). Therefore, H_{10} cannot be rejected and it can be concluded that the nudge did not have a significant effect on the amounts of looking towards AFB's in the supermarket.

Table 5

Looking at other AFB's

		Condition			Total
		AB	AFB	Control	
Looking at the nudge	No	9	3	7	19
	Yes	6	12	8	26
Total		15	15	15	45

When looking at the association between condition and buying AFB's with an Spearman's rho test, no significant correlation was found. Also, the Fisher's Exact Test did not show a significant association between those variables ($\chi^2(2) = 1.514, p = 0.422$). Therefore, H_{20} cannot be rejected according to the eye-tracker measurement and it can be concluded that the nudge did not have a significant effect on the purchasing of AFB's.

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Although no difference between conditions was found with regard to looking at and buying AFB's, an association was found between these two binary variables itself. The Spearman's rho did show a moderate correlation between *looking at other AFB's* and *buying AFB's* ($r = .545, p < .001, n = 45$). This correlation suggests that seeing AFB's actually stimulates buying them, although this association cannot be interpreted as a causation. However, analysing this association with a Chi square test a significant association between looking at other AFB's and buying them was provided ($\chi^2(1) = 13.359, p < .001$). These results suggest that participants who look at the AFB's (not the nudge) are significantly more likely to buy one. Lastly, according to the Fisher's Exact Test there was no significant difference between the three conditions with regard to the number of participants looking at the nudge and the number of participants buying AFB's.

Questionnaire

When looking at the responses of the questionnaire, a few significant correlations were found within the variables about attitude towards AB's, AFB's, and Heineken (see Correlation table – Appendix D). For example, a strong correlation was found between the goodness of AFB and the wisdom of AFB ($r = .620, p < .001, n = 46$). The goodness and wisdom were based on the scores on the attitude-scale bad-good and foolish-wise, respectively.

Besides the correlations within attitude, moderate correlations were found between attitude and the AUDIT-score. The mean of the AUDIT-score was 11.22 (SD = 6.89, [1-28]) and no outliers were found. A positive correlation was found between *AUDIT-score* and the *pleasantness of alcohol* ($r = .563, p < .001, n = 46$), *AUDIT-score* and the *pleasantness of Heineken* ($r = .481, p < .001, n = 45$), and a negative correlation between *AUDIT-score* and *pleasantness of alcohol-free* ($r = -.408, p < .01, n = 46$). Pleasantness was based on the scores on the attitude-scale unpleasant-pleasant. Also, a moderate positive correlation was found between *AUDIT-score* and *goodness of Heineken* ($r = .495, p < .001, n = 46$).

The attitude with respect to AFB was also moderate correlated with the intention to buy AFB's; a positive correlation between *buying AFB's* and *pleasantness of alcohol-free* ($r = .431, p < .01, n = 45$) and between *buying AFB's* and *goodness of alcohol-free* ($r = .402, p < .01, n = 45$). A weak positive correlation was found between *buying AFB's* and *wisdom of alcohol-free* (r

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= .342, $p < .05$, $n = 45$). There were found no (negative) correlations between attitude towards AB's or Heineken and buying these products.

Remaining remarks

When looking at the recordings, it was remarkable that no participants intended to buy a product from the nudge stand, although one participant bought an AB that was standing next to the nudge (in the AB-condition). All participants visited this supermarket earlier, and therefore probably knew the exact location of the alcohol(-free) products. This may have resulted in less attention to the nudge, because alcoholic products were not expected on that particular place. However, due to its visual saliency, it was still a possibility that the participants were nudged by the products on the box. Only two participants (both in condition 3) did not buy any AB's.

Sales figures (S2)

The sales figures of the supermarket (see Appendix E) were analysed, which contained the amounts of bottles that were sold in the last eight weeks, per day and per week. These also showed the specific weeks when products were on sale or not for the AFB and control-condition. These 'discount weeks' were excluded from the data per product, because these could influence a financial incentive to buy the product instead of only the nudge. Within the data of every condition, no outliers were found.

Descriptive data

When looking at the week totals, a mean of 67.25 ($SD = 21.110$, [29-91]) for AB sales was found, 13.17 ($SD = 4.665$, [7-19]) for AFB sales and 21.29 ($SD = 6.184$, [14-32]) for control sales. For each product, the sales within the nudge week was compared with their sales in the other weeks (see Table 6). The AB sales in its nudge-week (61) were lower than the overall mean, but not more than one SD. The AFB sales in its nudge-week (17) were just on the border of the one SD above the mean. The sales of the control product in its nudge-week (32) were more than one SD above the mean.

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Table 6

Sales within every week and every condition.

	Heineken	Heineken 0.0	Spa Fruit
AB-condition	61	7	18
AFB-condition	73	17	21
Control-condition	29	9	32
Mean study weeks	54.33	11.00	27.33
Mean overall weeks	67.25	12.71	21.29
Total	163	33	71

Given that there was no information about the influences (or other possible nudges) within the five weeks before the study, it was decided to exclude these data. For further analysis the data set consisted of sales figures of every product on every day within the study weeks. With a total sale of 163 bottles, AB was sold most, the control product sold 71 bottles, and the AFB sold 33 bottles (see Table 6 and Figure 6). Only in the last week more bottles of the control product were sold than AB's.

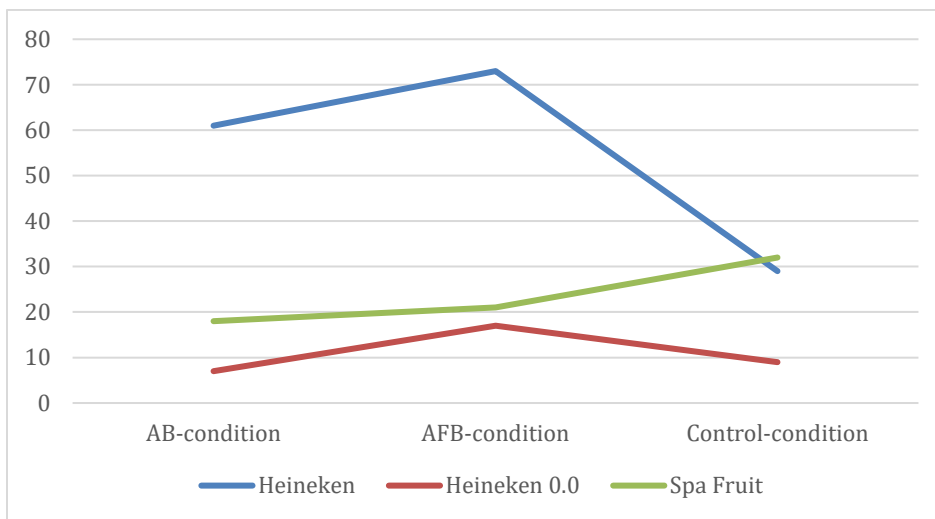


Figure 6. Mean sales per week within every condition.

Week differences

To test if there were significant differences in the amount of sales of AFB's between the different weeks, a One-Way ANOVA was conducted. The assumptions for the ANOVA on condition and the amount of sales of AFB's were met and thereafter no significant difference was found in AFB sales figures between the three weeks. Therefore, H_{2o} could not be rejected

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according to the sales figures and it can be concluded that the nudge did not have a significant effect on the purchases of the Heineken and Heineken 0.0.

Testing the significant difference in one of the other conditions, the same One-Way ANOVA was conducted for the AB- and control-condition, after the assumptions were met. Running the One-Way ANOVA for the AB-condition did not result in a significant difference between weeks with $F(2,18) = 1.895, p = .179$. Also the One-Way ANOVA for the control-condition did not show a significant difference between weeks with $F(2,18) = 1.598, p = .230$. Therefore, it could be concluded that there was no significant difference in sales figures of every product between the study weeks.

Discussion

The aim of this study was to test if an availability nudge could influence the salience and purchase of AFB's within a supermarket. According to the hypotheses it was expected that people in the AFB-condition would (1.) look significantly more often at other AFB's inside the supermarket and (2.) would buy AFB's significantly more often compared to people in other conditions.

Findings

Eye-tracker: When looking at the recording, the numbers of participants who were looking at other AFB's and the intended to buy them, was higher in the AFB-condition than in the others. However, a significant difference between the conditions was not found. Thus, H1₀ and H2₀ cannot be rejected according to the eye-tracking measurement. However, a significant association between the two variables *looking at* and *buying the AFB's* itself was found. This suggests that once participants saw AFB's (not the nudge itself) in the supermarket, they were more likely to buy AFB's as well.

Sales figures: The sales figures of Heineken 0.0 were expected to be significantly higher in the AFB-condition than in the AB- and control-condition. This difference seemed to be the case, however, no significant difference was found between the AFB sales of the study weeks, neither according to the sales of Heineken and Spa Fruit. One remarkable result was the higher sales of Spa Fruit within the control-condition, suggesting that the nudge of soda did have an effect on this product.

Explanations

Several possible explanations for these insignificant findings exist. First of all, there are many brands of AB's and AFB's. In this study, only the brand Heineken was tested because it is the greatest provider of AFB (Hentzepeter, 2018) and it was possible for the supermarket to implement. However, according to the questionnaire 39% of the participants stated to never buy products of this specific brand. The sales figures of the other brands that sell AFB's were not taken into account, but it could be that the nudge of Heineken 0.0 had an effect on buying other AFB's.

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Furthermore, many participants did not notice the nudge, not even unconsciously. Although the nudge was placed at the entrance of the supermarket, only 26 participants walked past it. Of those participants, only half of them looked at the nudge. The fact that only 13 of the 45 participants did see the nudge, could result in less accurate results in S1. It would be plausible that consumers overall would display the same behaviour, and therefore also the results in S2 could be influenced by this inattention.

Due to this field study being conducted at the supermarket, the nudge did not constantly look the same. Sometimes more products were present on the stand in contrast to other times. Additionally, the placing of the nudge was different within the conditions, such as the AB's standing on the right, whilst AFB's and the control products stood on the left. Besides, the bottles of the AFB-condition were packed in paper, while the bottles of the AB were not (see Figure 5a-c).

Another possibility could be that consumers did the shopping with specific products specific products in mind; by making a shopping list for example. With these aimed products in mind, the availability nudge at the beginning of the supermarket would not be noticed, because they are not expected at that location. This possibility is reinforced by the fact that looking at the AFB-nudge did not significantly influence buying other AFB's, but looking at other AFB's (on the shelf; see yellow part in Figure 4) did.

Answering the research question

The overall answer on the research question would be that no significant effect of an availability nudge of AFB in the supermarket on purchasing alcohol was found. Participants who were nudged with AFB's did look more at other AFB's in the supermarket than participants who were not nudged, although this difference was insignificant. Additionally, consumers who were nudged with AFB's did buy more AFB's than consumers who were not nudged, although this difference was insignificant. However, independent of the AFB-nudge, a significant relationship between looking at other AFB's in the supermarket and buying AFB's in the supermarket was found. This result suggests that consumers are more likely influenced by AFB-products when they are more closely located to their original selling place.

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Limitations of the sample

As mentioned before, a high percentage of visitors of this specific supermarket were students. This resulted in a sample group that was relatively young and high educated. However, according to Trimbos-instituut (2018), there are no large differences in the amount of alcoholic beverages consumed by people among different levels of education. Also, the highest percentages of heavy drinkers are found between the age range 20-24 (Trimbos-instituut, 2018), which resembled the data set. This also explains the high AUDIT-scores within the data set.

Furthermore, most of the participants were doing the task on their own, although buying alcohol for friends would perhaps usually be done with other friends. In that case, the social norm will influence the alcohol purchasing more than when the task is done alone (Rosenquist et al., 2010).

In addition, with 45 participants and 15 participants per condition the sample size was too small to draw firm conclusions. Adding the fact that many participants did not even walk past the nudge makes the data more unreliable.

Limitations of the measurements

As mentioned before, the findings could be influenced by the specific timing within the year. The three study weeks fell during Easter and King's Day, and as these are special days, this could have influenced the shopping behaviour of the consumer.

Within S1 the option quality was manipulated, because the participants went into the supermarket with a specific task. According to Gidlöf et al. (2017) visual saliency could be used as an advantage to identify products with a high level of option quality more easily. Within this current study, the visual saliency perhaps was not high enough, which made the option quality of the nudge products at the beginning of the supermarket less clear.

Within the recordings, looking at the nudge and the intention to buy AFB was measured binary measured. Therefore, the amount of looking and the amount of bottles was not considered, although there could be a pattern in these data. Beforehand, it was also the purpose to score the duration of looking. However, the gazes were all too short to recognize big differences between the gaze durations.

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Lastly, one assumption of the ANOVA in S2 is that the data needs to be independent of each other. At first glance this seems to be the case, but this could be questionable. If a consumer already had bought AFB's in the AB-condition, this probably would have affected the likelihood of buying AFB's in later conditions. However, there is no knowledge about the way of influencing this likelihood.

Implications

According to the observation that looking at other AFB's on the shelf did significantly correlate with buying AFB's, there could be suggested some implications. Apparently, an availability nudge could have an influence when it is closer to the original shelf of the product. A possible implication could be to place the nudge closer to the original place of the product, for instance at the small yellow part of Figure 4. A disadvantage of this nudge could be that less people would walk past it. On the other hand, the nudge will be seen more likely by the target audience; consumers with the intention to buy AB's.

Future studies

Within this study, no significant effect was found of an availability nudge at the entrance of the supermarket. In future studies it would be useful to place the nudge at other locations within the supermarket and analyse the effect of those.

Of all 45 participants, only two participants did not buy any alcoholic products and just 29% of the participants did buy AFB's. These numbers are problematically low and suggest that this specific participant sample did not give much attention to AFB's. In future studies, it would be interesting to have a control condition in which participants do not have to buy drinks for an abstaining friend. In this way, it would be examined if participants would buy AFB's by themselves.

Conclusion

Within this study, the influence of an availability nudge of alcohol-free beer (AFB) at the supermarket was investigated. According to the hypotheses, it was expected that people in the AFB-condition would (1.) look significantly more often at other AFB's inside the supermarket and (2.) would buy significantly more AFB's, compared to other conditions. Although this trend was shown within the data, however, the differences were not proven significant. Nevertheless, a significant relationship was found between looking at other AFB's (not the nudge) in the supermarket and buying AFB's, suggesting that consumers are more likely influenced by looking at AFB-products when they are more closely located to their original selling place.

A possible reason for the insignificant results is that many consumers did not walk past the nudge. Therefore, the nudge could not influence the decision-making. Secondly, the number of participants was small, resulting in low statistical power. Further research is needed about the exact place of the nudge to conclude whether nudging consumers with an AFB-nudge could be an effective intervention to decrease the alcohol consumption.

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Appendix A - Informed Consent

In deze studie wordt gekeken naar het consumentengedrag in de supermarkt met behulp van een eye-tracker. Hiervoor zal u een bril dragen waarin een camera zit verborgen die opneemt waar u uw blik op richt tijdens uw bezoek in de supermarkt. Voordat u de supermarkt ingaat, zult u van de onderzoeker een opdracht krijgen voor het kopen van bepaalde producten. Deze producten hoeft u **niet** echt af te rekenen en worden na het onderzoek weer terug gezet.

Na het uitvoeren van deze opdracht zal u een korte vragenlijst invullen over uw achtergrondgegevens en aankoopgedrag.

Na het onderzoek krijgt u uitleg over het onderzoek (debriefing). Met uw deelname maakt u kans op een bon bij de Bol.com die wekelijks door loting onder de participanten wordt getrokken.

De beelden die met de eye-tracker worden gemaakt zullen anoniem verwerkt worden en vervolgens veilig worden opgeslagen.

Deze antwoorden zullen vervolgens anoniem worden ingevoerd en zullen gekoppeld worden aan participant nummer. Hierdoor zal niks van deze informatie kunnen worden teruggekoppeld naar u.

Er zijn geen fysieke, juridische of economische risico's verbonden aan uw deelname aan deze studie. U hoeft geen vragen te beantwoorden die u niet wilt beantwoorden. Uw deelname is vrijwillig en u kunt uw deelname op elk gewenst moment stoppen.

Met uw ondertekening van dit document geeft aan dat u minstens 18 jaar oud bent, dat u goed bent geïnformeerd over het onderzoek, de manier waarop de onderzoeksgegevens worden verzameld, gebruikt en behandeld en welke eventuele risico's u zou kunnen lopen door te participeren in dit onderzoek.

Door dit formulier te tekenen ga ik akkoord met deelname aan een onderzoeksproject geleid door Lotte Schulze en Jeroen Benjamins.

Participant:

Onderzoeker:

Naam:

Plaats:

Datum:

Handtekening:

Wanneer u interesse heeft in de uitleg en resultaten van het onderzoek kunt u uw mailadres hieronder doorgeven. U zal hierop enkel benaderd worden voor de uitleg en de resultaten van de studie en indien u de loting van de Bol.com-bon heeft gewonnen.

Mailadres:

Wanneer vragen of klachten heeft neemt u dan contact op met de onderzoeksleider:

Dr. Jeroen Benjamins

030 253 1244 - J.S.Benjamins@uu.nl

Appendix B - Script in Dutch

It is important that every participant interprets the task in the same way so the results can be compared to each other. Therefore a script was followed. Of course this script was not always followed in the exact same way, but this was the basis of addressing the participants. At least, the words in **bold** were necessary to say in this word order.

Researcher: 'Goedenavond, mag ik u wat vragen?'

- Indien nee > 'Prettige avond verder!'

- Indien ja > 'Dankuwel. Voor mijn masterscriptie doe ik **onderzoek naar het consumptiegedrag van producten in de supermarkt** (*research into consumption behaviour of products in the supermarket*). Hierbij vraag ik klanten om met een bepaalde opdracht de supermarkt door te lopen met een eye-tracker. Deze eye-tracker meet vervolgens waar de klant allemaal naar kijkt tijdens zijn of haar supermarktbezoek. Na het bezoek is er een hele korte vragenlijst. Ik wil u vragen of u mee zou willen doen aan mijn onderzoek. Hiermee zou u mij erg helpen met mijn scriptie en maakt u ook nog eens kans op een Bol.com-bol. De opdracht zelf duurt ongeveer 10 minuten en daarna is er nog een vragenlijst van ongeveer 5 minuten. Zou u mee willen doen aan mijn onderzoek?

- Indien nee > 'Zou u een andere keer deze week wel nog mee willen doen aan het onderzoek?'

- Indien ja > Maak een afspraak voor een ander moment deze week.

- Indien ja > Hartstikke fijn dat u mee wilt doen! Ik wil u eerst vragen of u dit toestemmingsformulier zou willen lezen en tekenen. Hierin geeft u aan voldoende geïnformeerd te zijn en geeft u toestemming dat ik de gegevens gebruik voor mijn onderzoek. Daarna zullen we de eye-tracker op doen en scherp stellen. **Heeft u nu nog vragen?** (*Do you have any questions now?*)

After the informed consent is signed and the eye-tracker is tested:

Researcher: 'De opdracht voor u is dat u vanavond een **borrelavond heeft met drie vrienden, waarvan één iemand geen alcohol drinkt** (*drinking night with three of your friends, of which one is abstaining alcohol*). **De opdracht is om daar drankjes voor te kopen** (*The task is to buy drinks for this evening*). **Probeer u te gedragen zoals u altijd doet in de supermarkt** (*Try to behave in the same manner as you usually do in the supermarket*). [Opdracht nog één keer herhalen.] Heeft u daar nog vragen over?

- Indien nee > Tell the participant to enter the supermarket and start the recordings.

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Appendix C - Questionnaire

The questionnaire was filled in on a laptop with the following link on Google Form:

https://docs.google.com/forms/d/1gSZt58Pli4Fvtpes8IbL-Ui_naS5G_CrAoDmZ4ERN3o/edit

1. Wat is uw leeftijd?

2. Wat is uw geslacht? Man/Vrouw/Anders

3. Wat is uw hoogst voltooide opleiding?

- Geen onderwijs (lager onderwijs, niet afgemaakt)
- Lager onderwijs (basisonderwijs, inclusief LOM, BLO, speciaal en lager onderwijs)
- Lager of voorbereidend beroepsonderwijs (MAVO 1 / LBO / LTS / VBO / VMBO)
- Middelbaar algemeen voortgezet onderwijs (MAVO / ULO / MULO / VMBO / eerste 3 jaar HAVO en VWO / MBO-kort)
- Middelbaar beroepsonderwijs en beroepsbegeleidend onderwijs (MBO / MTS / MEAO)
- Hoger algemeen en voorbereidend wetenschappelijk onderwijs (HAVO / VWO / Atheneum / Gymnasium / WO-propedeuse)
- Hoger beroepsonderwijs (HBO / HTS / HEAO / WO-bachelor of kandidaats / Propedeuse)
- WO-doctoraal of master (wetenschappelijk onderwijs; universiteit)

4. Wat zijn de vier cijfers van uw postcode? (excluded)

5. Kunt u aangeven in hoeverre u het eens bent met de volgende stellingen?

Alcohol ervaar ik als:

5.1

Zeer onprettig					Neutraal						Zeer prettig
0	1	2	3	4	5	6	7	8	9	10	

5.2

Zeer slecht					Neutraal						Zeer goed
0	1	2	3	4	5	6	7	8	9	10	

5.3

Zeer vervelend					Neutraal						Zeer grappig
0	1	2	3	4	5	6	7	8	9	10	

5.4

Zeer dom					Neutraal						Zeer verstandig
0	1	2	3	4	5	6	7	8	9	10	

5.5

Zeer slap					Neutraal						Zeer sterk
0	1	2	3	4	5	6	7	8	9	10	

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

6. Kunt u aangeven in hoeverre u het eens bent met de volgende stellingen?

Alcohol-vrij ervaar ik als:

6.1

Zeer onprettig						Neutraal						Zeer prettig
	0	1	2	3	4	5	6	7	8	9	10	

6.2

Zeer slecht						Neutraal						Zeer goed
	0	1	2	3	4	5	6	7	8	9	10	

6.3

Zeer vervelend						Neutraal						Zeer grappig
	0	1	2	3	4	5	6	7	8	9	10	

6.4

Zeer dom						Neutraal						Zeer verstandig
	0	1	2	3	4	5	6	7	8	9	10	

6.5

Zeer slap						Neutraal						Zeer sterk
	0	1	2	3	4	5	6	7	8	9	10	

7. Kunt u aangeven in hoeverre u het eens bent met de volgende stellingen?

Heineken ervaar ik als:

7.1

Zeer onprettig						Neutraal						Zeer prettig
	0	1	2	3	4	5	6	7	8	9	10	

7.2

Zeer slecht						Neutraal						Zeer goed
	0	1	2	3	4	5	6	7	8	9	10	

7.3

Zeer vervelend						Neutraal						Zeer grappig
	0	1	2	3	4	5	6	7	8	9	10	

7.4

Zeer dom						Neutraal						Zeer verstandig
	0	1	2	3	4	5	6	7	8	9	10	

7.5

Zeer slap						Neutraal						Zeer sterk
	0	1	2	3	4	5	6	7	8	9	10	

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

8. Hoe vaak drinkt u alcohol?

- Nooit
- 1 keer per maand of minder
- 2 tot 4 keer per maand
- 2 tot 3 keer per week
- 4 of meer keer

9. Op een dag waarop u alcohol drinkt, hoeveel glazen drinkt u dan gewoonlijk?

- 1 of 2
- 3 of 4
- 5 of 6
- 7 tot 9
- 10 of meer

10. Hoe vaak zijn er gelegenheden waarop u 6 of meer glazen alcohol drinkt?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

11. Hoe vaak heeft u het afgelopen jaar gemerkt dat u niet kon stoppen met drinken als u eenmaal begonnen was?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

12. Hoe vaak was u in het afgelopen jaar vanwege drankgebruik niet in staat om de dingen te doen die normaal van u verwacht worden?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

13. Hoe vaak heeft u het afgelopen jaar 's ochtends alcohol nodig gehad om weer op gang te komen nadat u veel had gedronken?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

14. Hoe vaak heeft u zich het afgelopen jaar schuldig gevoeld of spijt gehad nadat u gedronken had?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

15. Hoe vaak kon u zich het afgelopen jaar niet herinneren wat de vorige avond gebeurd was doordat u gedronken had?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

16. Bent uzelf, of is iemand anders ooit gewond geraakt doordat u gedronken had?

- Nee
- Ja, maar niet in het afgelopen jaar
- Ja, in het afgelopen jaar

17. Heeft een familielid, een vriend, een dokter of een andere hulpverlener zich ooit zorgen gemaakt over uw drankgebruik of u aangeraden om minder te drinken?

- Nee
- Ja, maar niet in het afgelopen jaar
- Ja, in het afgelopen jaar

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

18. Hoe vaak bezoekt u deze supermarkt?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

19. Hoe vaak koop u alcoholische of alcoholvrije drank in deze supermarkt?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

20. Hoe vaak koopt u producten van Heineken?

- Nooit
- Minder dan 1 keer per maand
- Maandelijks
- Wekelijks
- Dagelijks of bijna dagelijks

U bent aan het einde gekomen van deze vragenlijst! Heeft u enig idee waar dit onderzoek over gaat? Zo ja, zou u dat hieronder kunnen typen?

.....

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

Appendix D Correlation table

Correlations between demographic, recording variables and attitudes

	Condition	Age	WalkNudge	LookNudge	LookAFB	BuyAFB	AlcPleasant	AlcGood	AlcFun	AlcWise	AlcSturdy
Condition	-	-	-	-	-	-	-	-	-	-	-
Age	-.139	-	-	-	-	-	-	-	-	-	-
WalkNudge	.000	-.197	-	-	-	-	-	-	-	-	-
LookNudge	.106	.071	.532**	-	-	-	-	-	-	-	-
LookAFB	.110	.129	.238	.062	-	-	-	-	-	-	-
BuyAFB	-.060	.211	.038	.051	.545	-	-	-	-	-	-
AlcPleasant	-.196	.152	-.004	.008	.192	.153	-	-	-	-	-
AlcGood	-.024	.107	.074	.084	.002	.061	.359	-	-	-	-
AlcFun	-.068	-.068	.138	.037	.149	-.059	.433**	.236	-	-	-
AlcWise	.134	.217	-.010	.004	.054	.165	.121	.433**	-.136	-	-
AlcSturdy	-.108	-.090	.098	.266	-.004	-.023	.288	.342*	.118	.099	-
AFBPlaesant	.041	.154	-.221	.038	.115	.410**	-.042	.030	-.120	.147	-.194
AFBGood	-.098	.039	-.141	.038	.147	.406**	.287	.181	-.051	.127	-.129
AFBFun	-.133	.139	-.410**	-.080	.038	.279	.066	-.208	-.122	-.092	-.063
AFB Wise	-.259	.023	-.039	-.076	.123	.345	.110	.030	-.193	.062	-.017
AFBSturdy	.232	.253	.164	.074	.164	.141	-.029	.201	-.110	.407**	-.139
HeinPleasant	-.071	-.105	.006	.044	.000	.028	.353*	.316*	.105	.072	.492**
HeinGood	.115	.033	.150	.149	-.004	.061	.267	.376*	.013	.377**	.271
HeinFun	.073	.181	.092	.042	.079	-.037	.249	.238	.179	.137	.258
HeinWise	-.124	.053	.035	.161	.084	.062	.151	.266	-.109	.264	.400**
HeinSturdy	-.009	.174	.094	.062	-.009	-.033	.126	.140	.046	.118	.270
AUDITScore	-.164	-.219	.242	.289	-.182	-.151	.563**	.240	.338*	-.087	.278

	AFBPleasant	AFBGood	AFBFun	AFB Wise	AFBSturdy	HeinPleasant	HeinGood	HeinFun	HeinWise	HeinSturdy
AFBGood	.536**	-	-	-	-	-	-	-	-	-
AFBFun	.513**	.223	-	-	-	-	-	-	-	-
AFB Wise	.237	.620**	.171	-	-	-	-	-	-	-
AFBSturdy	.204	.252	.149	.074	-	-	-	-	-	-
HeinPleasant	-.221	.005	-.152	.044	.000	-	-	-	-	-
HeinGood	-.354*	-.152	-.151	.149	-.004	.061	-	-	-	-
HeinFun	.034	.167	-.225	.042	.079	-.037	.249	-	-	-
HeinWise	-.222	.036	-.111	.161	.084	.062	.151	.266	-	-
HeinSturdy	-.220	-.195	-.185	.062	-.009	-.033	.126	.140	.046	-
AUDITScore	-.408**	-.033	-.141	.289	-.182	-.151	.563**	.240	.338*	-.087

** = Correlation is significant at the .01 level

* = Correlation is significant at the .05 level

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

Appendix E Sales figures

29-4-2019

Replenishment Informatie

Artikelinformatie

NASA-nummer EAN-code

Artikelinformatie	
NASA-nummer	805692
Omschrijving	heineken pils fl
Inhoud	30 CL

Voorraadstand Verkoppen Bestellingen Voorraadverloop

Jaarweek	Soort Prognose	Maandag		Dinsdag		Woensdag		Donderdag		Vrijdag		Zaterdag		Zondag		Totaal	
		Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.
201917	Evenement	0	13,6	10	15,3	6	9,8	3	15,0	0	25,4	5	11,7	5	13,5	29	104,4
201916	Regulier	22	14,4	22	13,0	2	9,9	0	12,6	12	17,4	10	12,3	5	11,6	73	91,3
201915	Regulier	3	14,9	8	13,0	10	10,1	18	12,3	5	15,4	6	11,5	11	13,2	61	90,4
201914	Regulier	19	14,8	12	11,9	3	9,5	8	12,3	15	15,6	20	11,6	11	13,5	88	89,3
201913	Regulier	16	13,9	5	13,0	1	9,7	8	12,1	2	16,2	7	11,9	9	12,9	48	89,6
201912	Regulier	10	14,1	18	12,7	10	9,8	10	11,9	0	15,6	6	11,9	12	13,2	66	89,1
201911	Regulier	18	11,0	16	7,9	4	8,0	8	10,5	12	11,6	4	9,4	20	8,7	82	67,1
201910	Regulier	20	7,8	14	8,3	12	4,4	14	10,6	16	12,3	5	9,8	10	7,2	91	60,4

Figure 7. Sales figures of bottles of Heineken.

29-4-2019

Replenishment Informatie

Artikelinformatie

NASA-nummer EAN-code

Artikelinformatie	
NASA-nummer	853847
Omschrijving	heineken 0.0% fl
Inhoud	25 CL

Voorraadstand Verkoppen Bestellingen Voorraadverloop

Jaarweek	Soort Prognose	Maandag		Dinsdag		Woensdag		Donderdag		Vrijdag		Zaterdag		Zondag		Totaal	
		Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.
201917	Actie	0	1,9	2	2,1	3	2,6	2	2,7	0	3,4	0	2,3	2	1,9	9	16,8
201916	Regulier	3	1,1	0	1,2	7	1,3	1	1,5	2	2,7	4	3,0	0	1,6	17	12,4
201915	Regulier	0	1,4	0	1,5	0	1,6	0	1,8	0	2,9	5	3,5	2	1,8	7	14,5
201914	Regulier	2	1,4	3	1,4	0	1,5	2	1,8	0	2,9	4	3,5	1	2,3	12	14,9
201913	Actie	0	1,0	2	1,2	0	1,2	0	1,4	4	2,3	4	2,8	0	1,7	10	11,5
201912	Regulier	0	1,0	2	1,1	1	1,2	2	1,4	0	2,2	4	2,8	6	1,7	15	11,4
201911	Regulier	0	1,0	2	1,1	1	1,1	2	1,3	4	2,2	9	2,5	1	1,7	19	11,0
201910	Actie	0	1,2	2	1,4	0	1,1	6	2,4	2	3,4	8	5,0	5	3,0	23	17,5

Figure 8. Sales figures of bottles of Heineken 0.0.

NUDGING ALCOHOL-FREE BEER IN THE SUPERMARKET

29-4-2019

Replenishment Informatie

Artikelinformatie

NASA-nummer EAN-code

Artikelinformatie	
NASA-nummer	843409
Omschrijving	spa lemon cactus
Inhoud	1,25 LT

Voorraadstand Verkopen Bestellingen Voorraadverloop

Jaarweek	Soort Prognose	Maandag		Dinsdag		Woensdag		Donderdag		Vrijdag		Zaterdag		Zondag		Totaal	
		Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.	Vk.	Pr.
201917	Evenement	5	2,8	3	3,0	3	3,2	6	2,5	9	5,8	1	4,6	5	2,8	32	24,6
201916	Evenement	7	2,0	3	1,9	0	2,2	3	3,6	3	4,4	2	4,8	3	2,4	21	21,3
201915	Regulier	2	2,2	0	2,0	2	2,4	1	2,4	3	3,8	5	4,5	5	2,8	18	20,2
201914	Regulier	2	2,2	1	1,9	2	2,2	1	2,6	5	4,2	4	4,9	1	3,1	16	21,1
201913	Regulier	3	1,8	1	1,8	5	2,0	1	2,6	3	4,4	5	5,0	4	2,9	22	20,5
201912	Regulier	1	1,9	2	1,8	8	2,0	2	2,2	6	3,7	6	4,4	1	2,6	26	18,7
201911	Regulier	0	1,9	2	1,6	1	1,9	1	2,2	5	3,7	4	4,1	1	2,6	14	18,0
201910	Actie	20	20,0	13	14,6	16	14,5	13	14,3	21	22,9	19	20,0	17	11,6	119	117,9

Figure 9. Sales figures of bottles of Spa Fruit.