

Measuring Effects of Online Nudging

Hoogvliet/NAGF
July 2021



Specifications of the analysis

Objective:

- Measuring the effects on sales volume of applying nudges with the aim of stimulating the sale of fruit and vegetables in the online environment of Hoogvliet.

Details of the analysis:

- Sales of Hoogvliet Supermarket via the app and website in the period May 25 2021 to June 28 2021 have been analysed.
- Customers were randomly assigned to the intervention group (and were shown the nudges) or the control group (and were shown the regular site/app).
- Purchases with more than 150 items were excluded, because we suspect that these are not consumers, but, for example companies.
- Customers who made their purchase in several sessions and who ended up in both the intervention group and control group were also excluded.
- Totally, more than 10,000 orders were analysed, consisting of hundreds of thousands of items, of which:
 - More than 5.000 customers were shown the nudges.
 - More than 5.000 customers were in the control group
 - Almost 5.000 ordered via the website
 - More than 7.000 ordered via the app



Application and limitations of the study

The research was conducted in a real-time online environment with real customers making real purchasing decisions. This means that the results are a very good representation of the potential effects of nudging. However, the approach also comes with a number of complications and limitations. Below we describe these limitations and their consequences.

- The analysis is limited to online purchases at Hoogvliet. This means that we cannot establish that people have started to buy more or less fruit in total, because we do not know whether they have started to buy more or less elsewhere (for example the greengrocer or the regular supermarket).
- Not every customer got to see every nudge. For example, some nudges were only shown to customers when they searched for a particular product. [A list of the applied nudges can be found here](#)
- We know from the literature that interaction effects can occur with nudging. This means that nudges applied in combination are more effective than nudges applied independently. Cumulatively, nudges can reinforce each other. For practical reasons, it was decided to apply all available nudges simultaneously. This means that we have no insight into interaction effects and only have a good picture of the overall effects of the nudges combined. Moreover, because we do not know exactly which customers have seen which nudge, we cannot properly analyse the effects of the individual nudges. The emphasis is therefore on the total effects.



Overall effects

% in basket

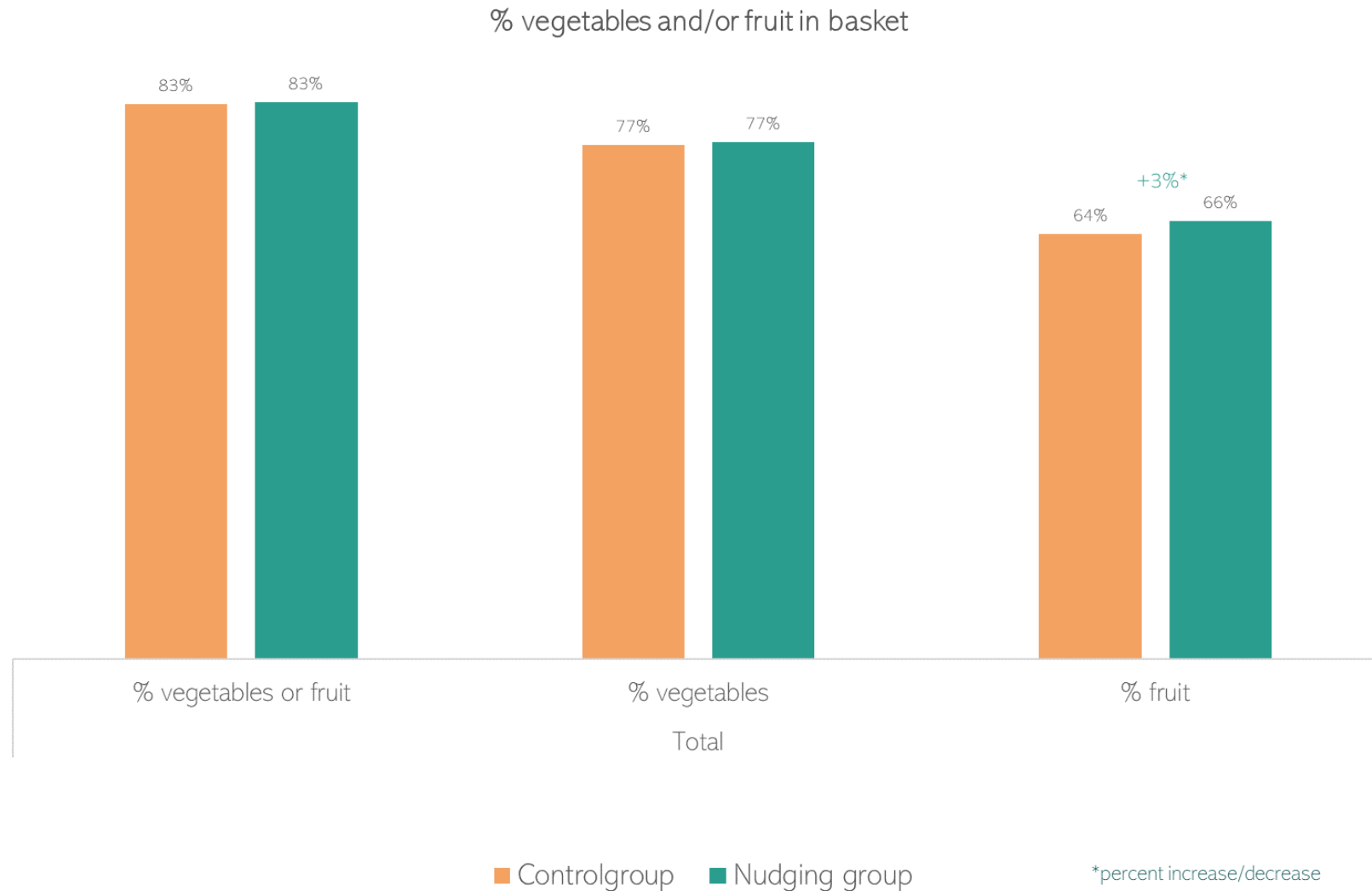
pieces

types

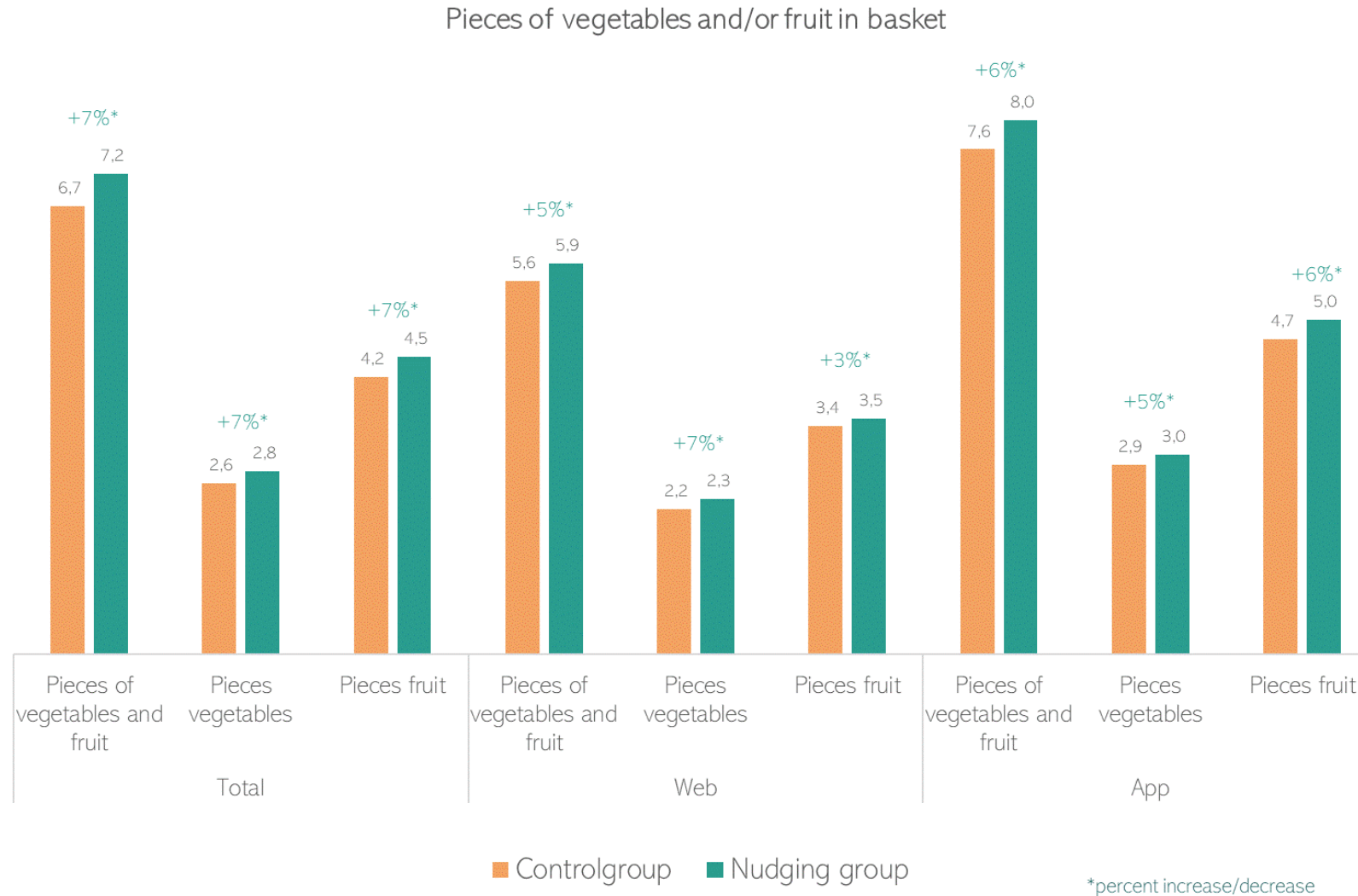
Volume



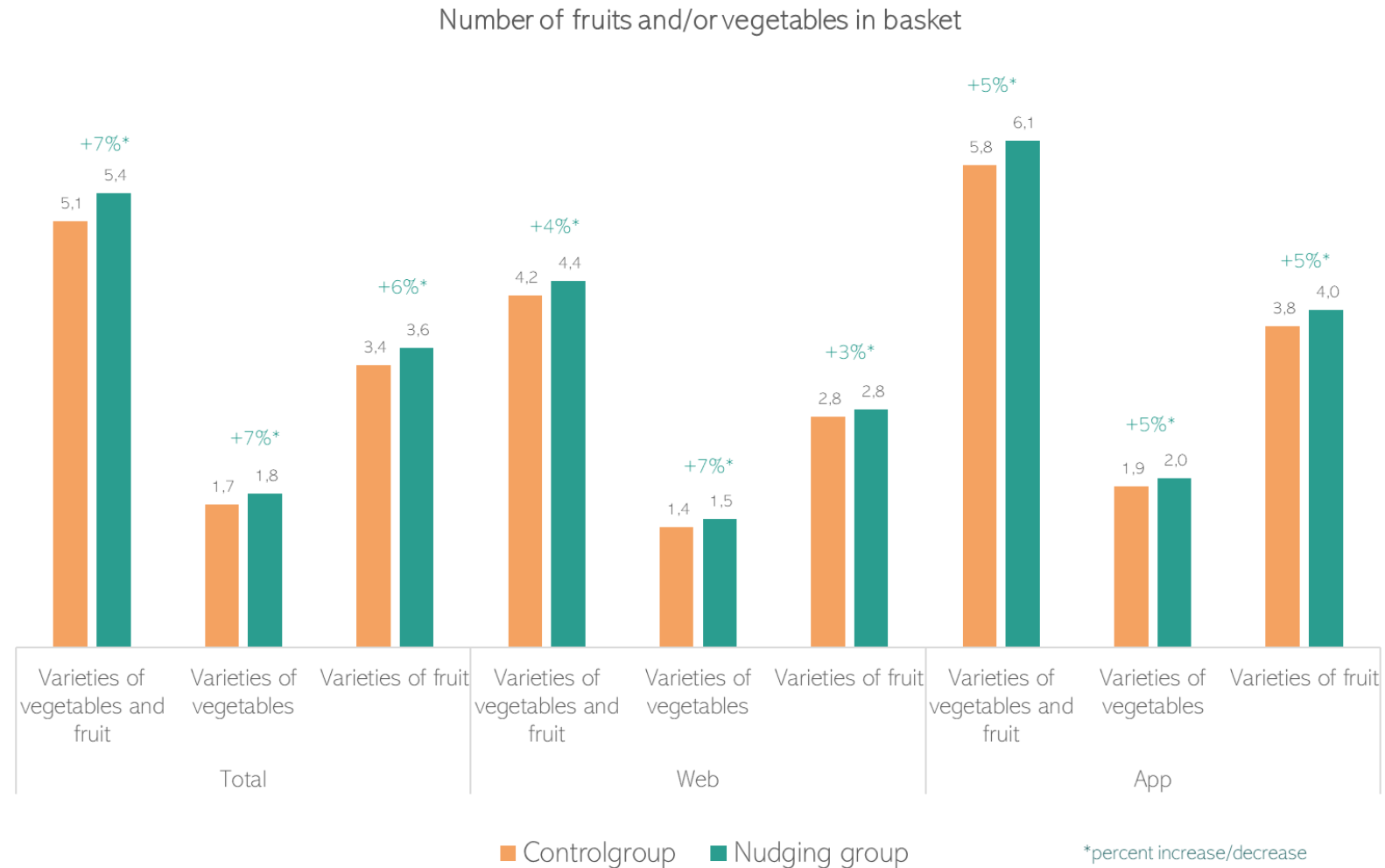
The vast majority (83%) of Hoogvliet customers already place fruit and/or vegetables in their virtual basket. Nevertheless, we see that in the nudging group 3% more customers put fruit in their basket compared to the control group. Overall however, we see that nudging does not lead to more people putting fruit and/or vegetables in their baskets. The effect of nudging apparently occurs among those who already bought fruits and vegetables.



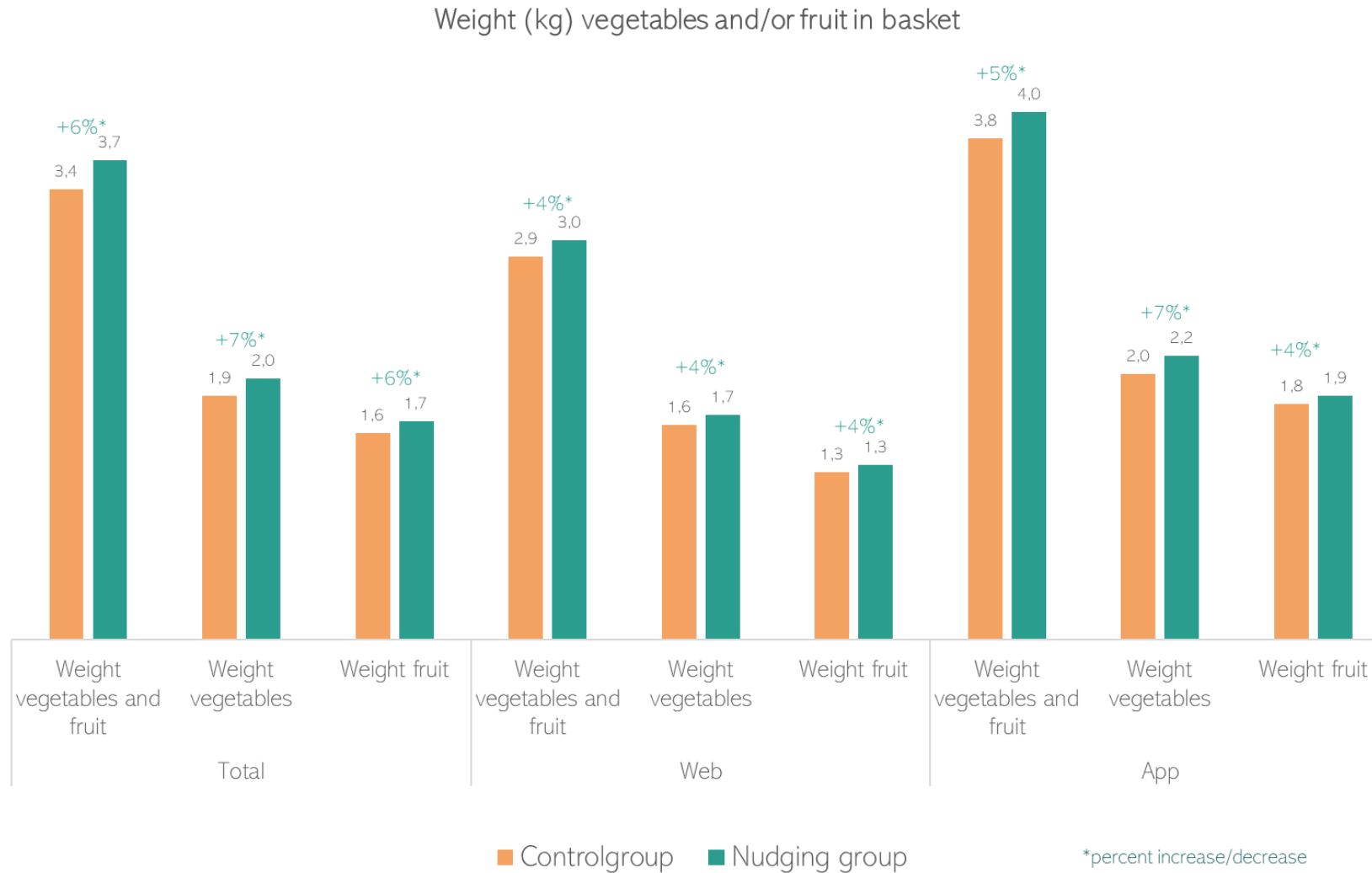
The customers in the nudging group bought 7% more pieces of fruit and vegetables than the customers in the control group. The increase can be seen on the website as well as in the app.



The number of varieties of fruit and vegetables purchased per customer is 7% higher in the nudging group. There is an increase on both the app and the website.



In total, 6% more kilos of vegetables (+7%) and fruit (+6%) are sold in the nudging group. The percentage effect is similar between app and web.



Conclusions effects nudging

Sold pieces, varieties and volume of vegetables and fruit:

- **7% more pieces** of fruit and vegetables were purchased by customers who were nudged. They also bought **7% more different types** of fruit and vegetables and **6% more kilos** of fruit and vegetables.
- The effects for fruits and vegetables are similar. The effects are also comparable if we compare the results in the app and on the website.
- The effects seem to occur on all SKUs, there are no SKUs that benefited above average from the nudging among the top 20 SKUs.

% of customers that put fruit and vegetables in their basket:

- **Nudging does not lead to more people adding vegetables to their baskets.** So it doesn't seem to have any effect on those who didn't put vegetables in their basket anyway.
- Looking at fruit we see a small positive difference. 3% more customers in the nudging group put fruit in their basket compared to the control group.

Individual nudges:

- The design of the experiment does not make it possible to zoom in on the effects of individual nudges. Where possible, we looked at possible effects. We were unable to find any effects for the banners and recipes. However, this does not mean that these nudges did not contribute to the cumulative overall effect.
- The add-to-cart suggestions do seem to lead to an increase in sales of individual SKUs, especially when it comes to really relevant combos (iceberg lettuce and shawarma sandwiches, yogurt and kiwi, etc.). But this does not apply to all add-to-cart suggestions. A number of combinations even seems to lead to a decrease in sales.



Opinion consumer about nudging

Hoogvliet/NAGF
July 2021



Specifications of the study

Details of the study:

- Customer surveys via a hotjar popup at/after checkout.
- Only customers of the webshop, not of the app.
- A total of 585 customers completed the questionnaire. Due to a technical issue, it was not possible to determine whether 393 belong to the intervention group or to the control group.
- The remaining 192 respondents are distributed as follows:
 - Controlgroup: 77
 - Nudging group: 115
- *Due to the small sample size, we must interpret the results with caution. There are no statistically significant differences.*

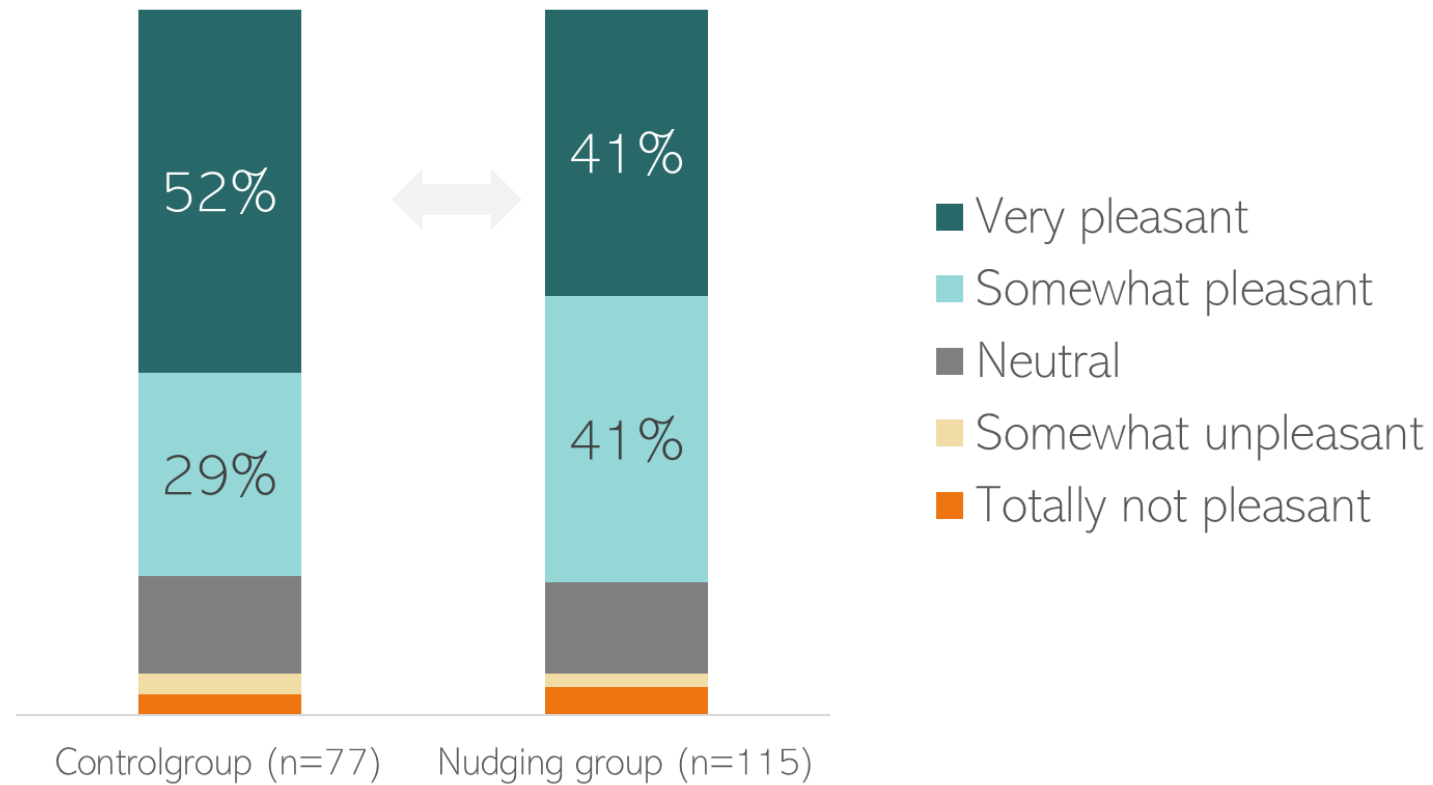
Objective:

- Measuring to what extent customers see that they are being nudged
- Measuring the effect of nudging on the customer experience
- Measuring opinions about applying nudging

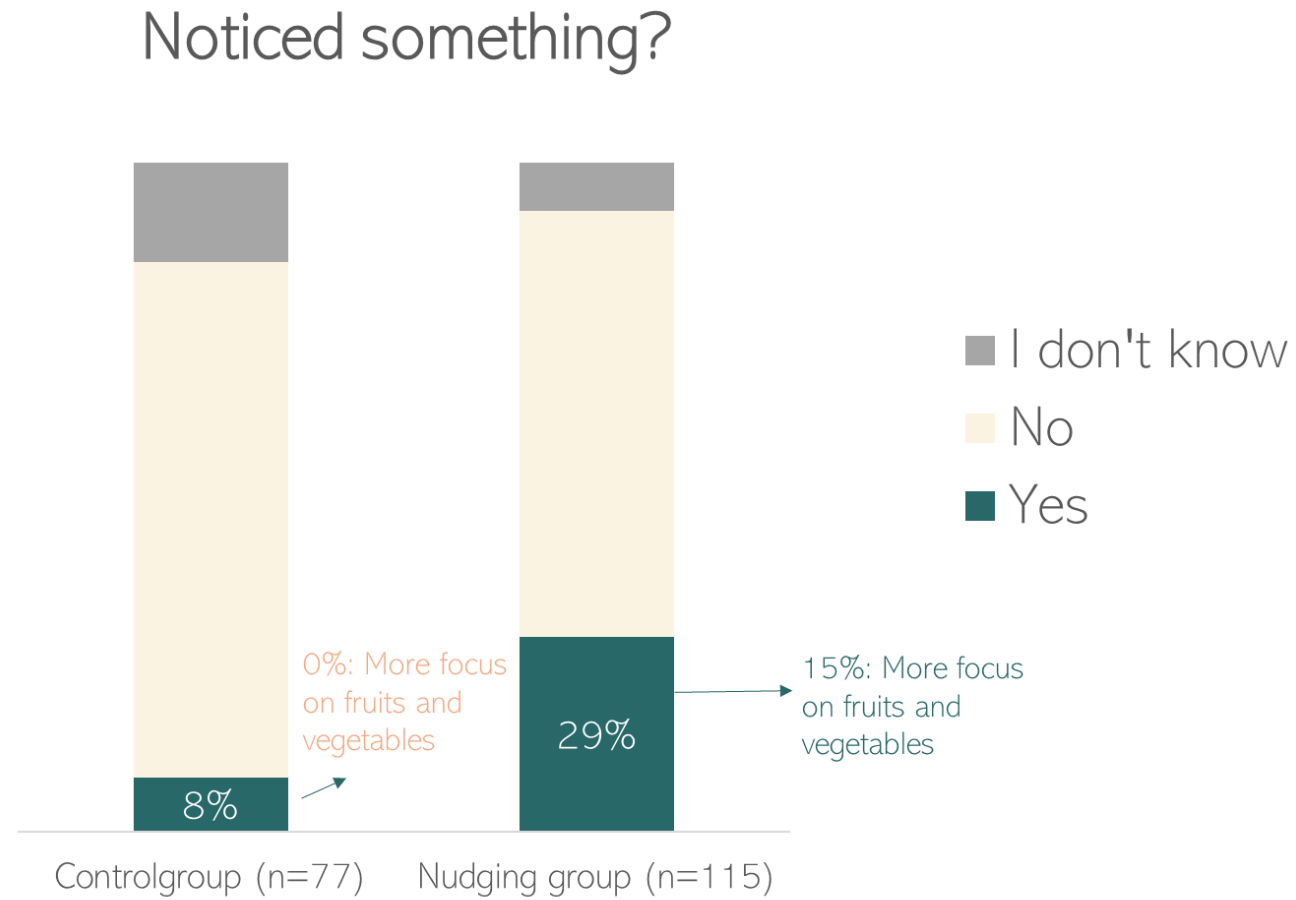


The nudges seem to have a small negative effect on the visitor experience. Fewer customers experience shopping on the Hoogvliet site as 'very pleasant'.

Experience

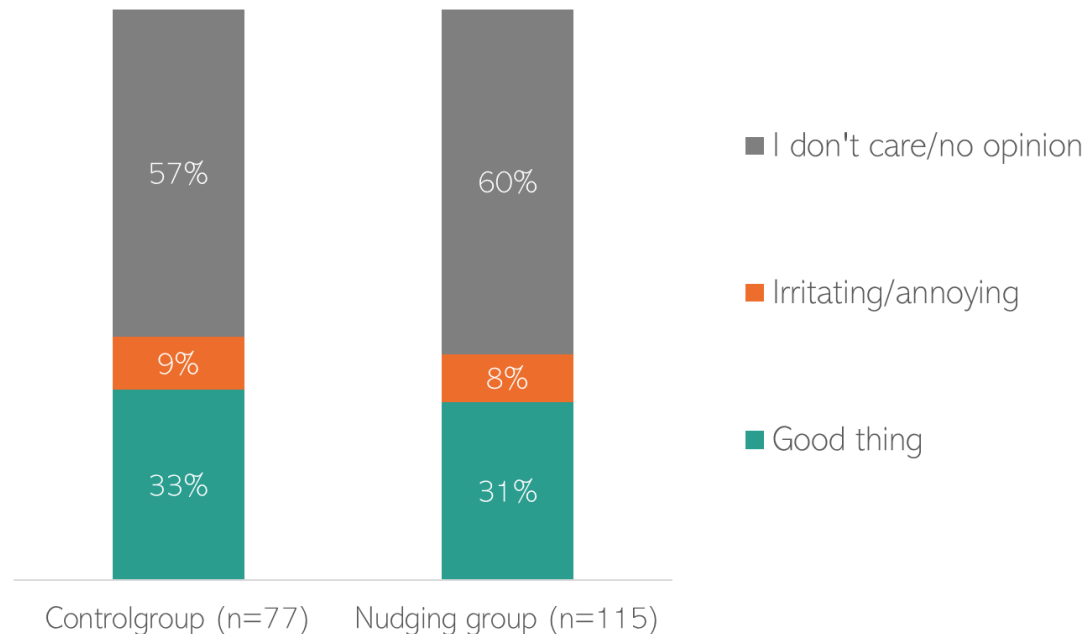


The nudges really stood out. 15% of the nudged visitors saw that there is more attention for fruit and vegetables.



A small minority (8%) find it irritating or annoying when Hoogvliet tries to influence customers to buy more fruit and vegetables. Most customers feel indifferent about this.

Opinion about influencing the purchase of fruit and vegetables



To illustrate the irritation that has arisen, below are two reports that have been received by customer service* during the intervention period:

- *"I don't think it's appropriate to confront myself with too little percentage of fruit and vegetables. This is disguised advertising and encouragement to supplement it. We have a real greengrocer around the corner..... Could that have something to do with it? Would you also like to remove all hundreds of sweet and fattening products from the shelves and advise them to be removed from the orders? That would at least be consistent. I look forward to your answer to an otherwise satisfied Hoogvliet customer."*
- *"Customer called and states that the new website is patronizing. When she places an order, she does not want to be pointed out that there are too few or no fruits and vegetables in her shopping cart. If she is standing at the cash register in the store, the cashier won't say, how few fruits and vegetables you have? Then the woman would also respond with, go on and mind your own things. She really thinks this is highly patronizing!!"*

*These are the only 2 registered customer comments received through customer service. The number of customers who reported a complaint was therefore minimal.



Conclusions effects nudging

- Although the sample of the customer survey is too small to draw firm conclusions, the results offer a number of points to consider.
- The majority of customers have no problem with nudging. The majority (60% of the intervention group) is neutral about influencing customers to buy more fruit and vegetables. Some positive (31%).
- However, there is also a small group of consumers who are negative about this, 8% of the customers who were confronted with the nudges.
- We note a slight degree of irritation among a small number of customers. We also see a slightly lower score for customer experience among the customers who were confronted with the nudges. It seems some nudges applied were not subtle enough.
- The definition of a nudge is a subtle, unobtrusive push, intended to change behaviour. However, the customer surveys show that the nudges were noticed, 15% of the customers in the intervention group were aware that more attention was paid to fruit and vegetables when ordering.
- A few customers contacted customer service as a result of the nudges. From their comments, it appears that, for example, the “fruit and vegetables meter” can be seen as patronizing.

Recommendations:

If some of the customers experience nudging as negative, this can eventually partially cancel out the positive outcome of the experiment. When applying nudging in practice, the advice is therefore not only to measure the effects on turnover, but also to **keep a close eye on the effects on customer experience**.

- The irritation of a small part of the customers is probably because some nudges were not subtle enough. This mainly concerns normative nudges (comparison with average numbers of varieties of fruit and vegetables) that could be experienced as patronizing.
- In subsequent projects it is advisable to avoid such normative nudges that may be experienced as patronizing.

