Coping with microplastics from laundry

Group 3

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The challenge

In 2021, the oceans received more than 17 million tons of plastic material, and this amount is expected to double or triple by 2040 (1). The main concern of this project is microplastics, which have been found in marine organisms 'including many species caught and sold for human consumption' (2). Microplastics have also been discovered in human blood and in breast milk (3). The total annual emissions of microplastics in Norway is approximated at 8,000 tons, and the fifth largest source of microplastics in the oceans is from the textile industry (4). The plastics from textiles are reaching the ocean in the form of microplastics released during laundry. What can we do to change people's behaviors to wards minimalizing the emission of textile-based microplastics in Norway?

Methodology

- We produced paper stickers informinging a certain clothing item does not contain plastic. A poster with a QR code was placed in the store close to the products which guided customers to a web page that informed them about the issues of microplastics.
- The stickers were placed on clothing products in two stores on Friday the 20th and Saturday the 21st of January 2023. Through discussion and focus group testing, a 5cm minimalist off-white sticker was chosen. Sales numbers are collected to see if customers changed preferences.
- The wording was framed in a positive manner to give an incentive for the shops to accept the project.

Current knowledge

There is limited public awareness about microplastics in the oceans (5). The plastic industry also has limited interest in reducing the overall dependency on plastics. One way to promote change might be to look at Karen O'Brien's "Three spheres of transformation" (6). In this model, a change in perception at the personal sphere (beliefs, values, worldviews, and paradigms) influences the political sphere (systems and structures) which in turn impacts the practical sphere (behaviors and technical responses) where transformational changes become visible (6). A way of managing this change is through the behavioral economics concept of "Nudging", which is a way to influence people's actions and behaviors through small impartial measures (7). At the same time, nudging primarily leads to short term influence on consumer behavior and thoughts. It cannot solve the issue alone, but it can serve as a step on the way of greater awareness of this particular issue.

Our goals

- The overall goal of the project is to reduce microplastics in the ocean. This pilot study seeks to understand if nudging can be used to remind people about the ongoing discourse about microplastics and to then make different choices.
- This project aims to influence consumer behaviour as opposed to banning plastic, plastic tax etc, as nudging could realistically be introduced into store policies without having to challenge any power structures or governmental initiatives.

The experiment



Stickers with "Plastic" free clothing" were put on several clothing items in two

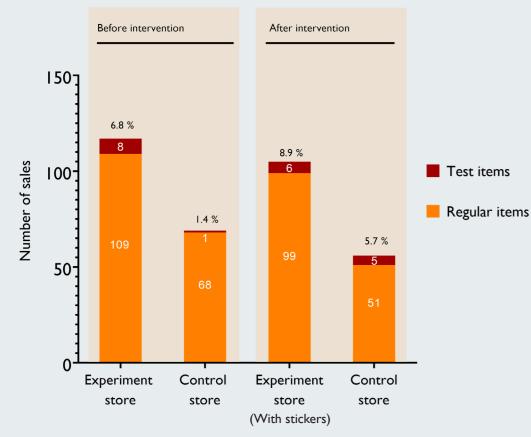
different stores.

Sales data from the two stores as well as two stores in the same respective chain was gathered. This was data from the two days of the experiment, and from the same days the week before (control data). This was control for unmeasured variables.

Results

In terms of sales numbers, no clear indication of an effect was found when using the nudging measures. However anecdotally, the shop employees had observed customers discussing the topic of microplastics when noticing the stickers and posters. This might indicate a potential for starting discussions, although further studies are required.

Sales data



Data from the store 'Norrøna' at Trondheim city center



Data from the store 'Boys of Europe' at Trondheim Torg

Conclusion

The study did not demonstrate any changes in sales numbers, however it found anectodal evidence of discussions being created. Further studies are necessary to determine if there are circumstances where nudging like this can affect consumer choice, and to what extent it raises consumer awareness. The operation itself however will have had an impact on the team and our store partners that might serve as microscopic pieces of the greater puzzle of changing attitudes on ocean microplastics caused by laundry.

Interdisciplinarity

Per's aesthetic and practical design skills as an architect were applied to design the stickers and the poster. Further his experience with group work during his studies allowed him to set realistic expectations. Trym and Sheriff used their analytical background from political science and sustainable development to collaborate about researching the theory for the scientific poster. Further Trym used his experience from door-to-door sales when talking to storeowners. Elise utilised her methodological and technical skills in statistics and modelling from her medical school education to create the research design and data analysis. Olena used her social and academical skills to research the theoretical framework for the process report.

Strengths & Weaknesses

Weaknesses: Time constraints, limited resources leading to limited data and sample size. Long term impact is difficult to measure, type of stores recruited, unmeasured variables affecting the result, lack of randomization, multiple interventions Strengths: Simplicity of the intervention, reproduceable study design, inclusion of a control group, societal interest, evidence-based method (nudging).

References

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Value to society

The main value this experiment contributes to the greater society is raising awareness and potentially reducing the emission of microplastics from laundry.

What's next?

- Making the project large scale to allow for larger samples of data.
- Testing to what extent changing variables would change the effect. For instance: experimenting with different designs and formulations, different demographics and different geographical locations.
- Exploring different types of nudges that can be used to achieve the same goals as this project.
- Meassuring to what extent the project causes discussions among the consumers