Posters of Watching Eyes and Nature Promote and posters of Injunctive Norms Undermine Clean Environments

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Method Article

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**Abstract**

Fostering pro-environmental behavior is central to mitigate climate change. In the present paper four distinct interventions are tested which, based on different processes, should reduce littering: monetary information, depiction of the injunctive norm, watching eyes and a nature picture. To test these interventions, a randomized controlled trial (RCT) involving 440 community building’s waste disposal areas (N = 71,155) was conducted in Vienna. Littering was assessed before the intervention, 24 to 48 hours after and again seven weeks after the intervention. Results show that the financial intervention (monetary information) hardly had any effect on littering whereas the norm-based intervention (depicted injunctive norm) led to more littering compared to the control condition. In contrast, the reputation-based intervention (watching eyes) and ecological-based intervention (nature picture) reduced littering over time. Thus, modern interventions based on soft appeals to reputational and ecological motivations are more effective in fostering clean environments than classical interventions applying information on finances and norms.

**Introduction**

**Reagents**

**Equipment**

**Procedure**

1. Online pre-study of the material with a sample of people representative for the inhabitants of the social housing buildings of Wiener Wohnen (see Pre-study Details and Briefing Vortest in the Supplementary Material). The data collection was organized by a market research agency with the aim to address people who do not have German as their mother tongue

2. Identification of suitable waste disposal areas plus assignment of individual codes (IDs) per area

3. Randomization of interventions and control condition, stratified for indoor and outdoor waste disposal areas

4. After analyzing the pre-test results: Getting the final interventions prepared by graphic designers and printed on DIN-A1

5. Preparation of a data collection timetable: The timetable was designed such that a team of 2 research assistance members could visit enough sides in order to allow two data collections of all 440 waste disposal areas within three days (see Plan and Control List Assessment in the Supplementary Material)
6. Preparation of data collection material: Paper-Pencil-Questionnaires/plans for the research assistants to indicate the time a photo was taken for each area (identified by IDs), garbage in front of the door, full waste containers, appearance of the poster and a field for open comments (see OB-Liste in the Supplementary Material)

7. Training of the research assistants to take picture with iPads (employees of the Social Housing company). We invited the employees to our premises and introduced the project as well as we trained them to take the pictures (see the Powerpoint presentation “OB Schulung Foliensatz 2020 06 23” slides we used for this training in the Supplementary Material)

8. Scheduling the implementation of the interventions shortly before the assessment T2 (see Implementation of Interventions and Assessment T2 in the Supplementary Material)

9. After assessment, photos were downloaded from the iPads by Wiener Wohnen staff and stored on USB sticks. After each assessment time, USB sticks were picked up and taken to the researchers.

10. Preregistration of the material, processes, and data analyses: https://www.socialscienceregistry.org/trials/6108

11. Start of the data collection for assessment T1

12. Training of the research assistance who rated the photos. We rated a pilot set of photos and afterwards discussed our decisions and an appropriate calibration of the rating scale. We realized that the two research assistants had a different feeling for cleanliness and agreed that it is ok to have divergent views. After realizing that we can assess more than just floor cleanliness, i.e., cigarette butts, we also added this to the task of the raters.

13. After each assessment time, the two research assistants rated each photo on a scale from 1-7.

14. Start of the implementation of interventions plus assessment T2

15. After each assessment time, the two research assistants rated each photo on a scale from 1-7.

16. Replacement of posters that had fallen off the wall

17. Start of the data collection for assessment T3

18. After each assessment time, the two research assistants rated each photo on a scale from 1-7.

**Troubleshooting**

1. Photos were planned to be transferred via the internet. But that was too slow, so we switched to USB-stick.
2. Research assistants became sick and needed to be replaced. One iPad crashed and we lost pictures which could not be replaced. Some photos were not correctly labelled, and we could not identify the waste disposal areas- such photos were not included in the final data.

3. In the end, only waste disposal areas were included in the final sample which had at least one picture per assessment time.

**Time Taken**

- Preparation of the field-experiment (project management, training of the research assistants, printing of the posters etc.: 6 weeks
- Data collection: 7 Weeks
- Rating of pictures per assessment time: about 4 days

**Anticipated Results**

We expected that all interventions should reduce littering. Details are presented in the preregistration: https://www.socialscienceregistry.org/trials/6108

**References**

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**Supplementary Files**

This is a list of supplementary files associated with this preprint. Click to download.

- [BriefingVortest20200603.docx](#)
- [ImplementationofInterventionsandAssessmentt2.xlsx](#)
- [OBListetime2and3.xlsx](#)
- [OBSchulungFoliensatz20200623.pptx](#)
- [PlanundControllistAssessment.xlsx](#)