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Social influence fosters the use of a reusable takeaway box

Michael Dorn *, Sabrina Stöckli

University of Bern, Institute of Marketing and Management, Department of Consumer Behavior, Switzerland

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ABSTRACT

The severe ecological and economic consequences of disposable takeaway containers call for the implementation of effective interventions: namely, the use of reusable takeaway boxes. The present field study examined how social influence determined whether customers chose a reusable or a disposable takeaway box at a takeaway restaurant. We unobtrusively recorded the takeaway packaging choices (reusable vs. disposable) of customers over lunchtimes during a period of four weeks. We operationalized social influence in two ways. First, we manipulated *social norms*. For half of the field days, we added a normative message to the existing informational material on the counter of the takeaway outlet. Second, we observed *social modeling* by recording whether the takeaway packaging choice took place in the presence of other customers using a reusable takeaway box. The results were mixed: On one hand, we found no effect from the manipulated social norm, which we discuss in the light of past interventions using social norm messages. On the other hand, we found an effect of the observed social modeling: witnessing others using a reusable takeaway box increased the odds of choosing one oneself. This finding demonstrates the importance of getting customers to perform the desired behavior, to serve as social role models for others.

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1. Introduction

In industrialized countries, packaging of takeaway foods and beverages constitutes the largest proportion of litter in public areas. In Switzerland, more than 50% of litter is made up of takeaway food and beverage packaging (Heeb et al., 2004; Wälti and Almeida, 2016). In addition to its ecological consequences, public littering costs Swiss communities and the Swiss public transport systems around $200 million annually. Dealing with discarded packaging from takeaway foods and beverages alone costs $107 million annually. In comparison, littered cigarettes generate only about half these costs (Berger and Sommerhalder, 2011). To date, various governmental, for-profit, and non-profit organizations have introduced measures to solve this ecological and economic problem. One example is the introduction of reusable takeaway box systems.[1] For example, reCIRCLE[2] allows customers of participating restaurants to take away their food in a reusable box. Strictly speaking, customers rent the takeaway box for about $10 and can

either return it to any collection bin after use and get back the 'rental fee', or reuse it. So far, various informational materials (e.g., flyers, signs and wobblers[3]) have been used to encourage the use of the system. Yet it remains challenging to effectively 'nudge' (see Thaler and Sunstein, 1999) customers' behavior in the direction of more environmental packaging options.

From the perspective of behavioral change (intervention) literature (e.g., Michie et al., 2011; Schultz, 2014; Steg and Vlek, 2009), it is unclear whether informational material alone effectively changes behavior. This body of literature comprises various intervention types that foster sustainable consumer behavior. (For comprehensive reviews of these intervention types, see e.g., Abrahamse et al., 2005; Homburg and Matthies, 1998; Osbaldiston and Schott, 2012; Schultz, 2014.) Informational intervention is by far the most frequently applied and investigated type of intervention to promote sustainable consumer behavior (e.g., Schultz, 2002; Abrahamse et al., 2005; Cox et al., 2010; McKenzie-Mohr, 2011). This intervention type is based on the idea that learning information about the negative consequences of an undesired behavior and the positive consequences of a desired

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* Corresponding author at: University of Bern, Institute of Marketing and Management, Department of Consumer Behavior, Engehaldenstrasse 4, 3012 Bern, Switzerland.

E-mail address: michael.dorn@imu.unibe.ch (M. Dorn).

[1] An example from the US is Go Box https://www.goboxpdx.com/.
[2] www.reCIRCLE.ch/.

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[3] A wobbler is a tag—typically with a message—that is attached to a (point-of-sales) surface such as a counter, shelf or buffet, to stand out to grab customers' attention.

behavior will cause problem awareness and thus change behavior. Paradoxically, however, informational interventions are among the least effective intervention types. A meta-analysis comparing common intervention types reveals a relatively low average effect size for informational interventions such as instruction ($g = 0.31$) and justifications ($g = 0.41$) (Osbaldiston and Schott, 2012). Nevertheless, informational interventions are likely to be successful when combined with other interventions types (Kollmuss and Agyeman, 2002; McKenzie-Mohr, 2011; Steg et al., 2008).

An arguably promising intervention type to combine with informational interventions is social influence. The effect of social influence interventions is based on the idea that people have an urge to align their behavior to the words and actions of others (Asch, 1956; Burger, 2009; Milgram, 1964). A famous demonstration of the power of social influence shows that when a single pedestrian is gawking upwards, about 4% of passersby align their behavior to his or her behavior. However, if the crowd of gawkers grows to a dozen, around 40% of passersby join in (Milgram et al., 1969).

For interventions which are intended to foster sustainable behavior, social influence is often exerted by means of social norms or social modeling. (For a review see, e.g., Abrahamse and Steg, 2013; McDonald and Crandall, 2015.) Social norm interventions apply rules and standards that guide people in their behavior by signaling what the majority does (*descriptive norm*) or what the majority (dis)approves of (*injunctive norm*). Apparently interventions are most effective when they combine both the descriptive and the injunctive norm (Griskevicius et al., 2008; Schultz et al., 2008, 2007).

Social modeling interventions use a confederate to act as a model; the confederate performs a desirable behavior anticipating that others will engage in this behavior when they observe it. Interventions are particularly effective when the demonstrated behavior is relevant, meaningful and easy, as well as when more than one model displays the target behavior (Abrahamse and Steg, 2013; Sussman and Gifford, 2013).

A meta-analysis comparing common intervention types seems to confirm the effectiveness of social influence, as it found that social influence interventions – mainly social modeling – are most effective in fostering sustainable behavior ($g = 0.63$; Osbaldiston and Schott, 2012). Note that a meta-analysis specifically comparing social influence interventions shows that social modeling is more effective in fostering sustainable behavior than social norms (Abrahamse and Steg, 2013). Nevertheless, social norm interventions have been tested relatively often and found to be successful. Most likely this is because they are particularly easy to implement at large scale (e.g., Goldstein et al., 2008; Griskevicius et al., 2008; Mortensen et al., 2017; Nolan et al., 2008; Schultz et al., 2008, 2007; Sparkman and Walton, 2017).

Given the power of social norms and social modeling, we argue that social influence interventions are particularly useful in a social context such as a public takeaway outlet. Deciding on takeaway packaging is public as customers have to (1) announce their takeaway packaging choice publicly to a vendor and (2) expose their takeaway packaging choice to the public until mealtime is over. In fact, the mere presence of others can induce a desire to manage one's impression (Argo et al., 2006; Latané, 1981; White and Dahl, 2006). Interestingly, it has been found that people feel particularly compelled to conform to prevalent social influence in the social context of a restaurant (Ariely and Levav, 2000; Hamerman et al., 2018). Although extensive empirical evidence stresses the impact of social modeling on general food consumption in restaurants (e.g., food intake; see e.g., Ariely and Levav, 2000; Cruwys et al., 2015), there is no evidence of the effect of social modeling on sustainable behavior in restaurants. In contrast, the impact of social norm interventions on sustainable behavior in restaurants is well documented. In fact, field studies show that normative messages

on buffets or tables[4] successfully compel people to reduce their food waste (Kallbekken and Sælen, 2013; Stöckli et al., 2018).

Note, however, that social modeling is well documented for promoting sustainable behaviors in other contexts. Seeing others putting their soda cans in the trash, for instance, makes it less likely that one will leave one's own can in the street (Geller, 1990). Likewise, being exposed to confederates' composting behavior makes it more likely that one will compost as well (Sussman and Gifford, 2013). Also, observing others turning off the water while soaping up in a shower room can induce the same behavior (Aronson and O'Leary, 1982–83).

This research aims to test whether social norms and social modeling can be effectively used to promote the use of reusable (vs. disposable) takeaway boxes. Thus, our hypotheses are as follows:

> *H1*: People are more likely to choose a reusable (vs. disposable) takeaway box when they are exposed to informational material advertising the reusable boxes *with* a normative message compared to *without* a normative message.
> *H2*: People are more likely to choose a reusable (vs. disposable) takeaway box when they experience other customers choosing or using a reusable (vs. disposable) takeaway box compared to when they experience customers choosing or using only disposable takeaway boxes.

To test our hypotheses, we operationalized social influence in two ways. First, we manipulated *social norms*. That is, we tested whether a social norm message is more effective than an informational message in advocating the use of a reusable takeaway box. Second, we observed *social modeling* to account for 'real-life' demonstrations of the use of reusable takeaway boxes by other customers.

2. Method

2.1. Design, procedure and sample

The field study was run in an Asian takeaway restaurant in a Swiss city over a period of four weeks. The takeaway outlet was chosen because it was among the best frequented restaurants participating in the local reusable takeaway box system reCIRCLE. The study was run only on weekdays for 120 min each day over lunch time (always from 11:30 am to 1:30 pm).

The experimental design of the study consisted of the between-subjects factor *manipulated social norm* (message: informational vs. social norm). On each day a sign with either the informational message or the social norm message was placed on the counter of the takeaway outlet. Message types were permuted to avoid "weekday effects".

In addition, the design included the factor *observed social modeling* (demonstration of target behavior: not present vs. present). That is, we coded whether or not customers experienced other customers choosing reusable takeaway boxes.

During data collection, an experimenter sat at a table next to the takeaway outlet and unobtrusively recorded (1) the type of takeaway packaging chosen for every order, (2) whether customers experienced social modeling or not and (3) the gender of the

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[4] Normative messages such as the following two: 'Welcome back! Again! And again! Visit our buffet many times. That's better than taking a lot once.' (Kallbekken and Sælen, 2013) or 'Our guests expect a reduction of food waste. A third of all foods are thrown away. 45% of the waste occurs in households and restaurants. The majority of our guests expect that the wasting of food is reduced. Therefore, many people ask us to wrap their pizza leftovers. Please ask us to box your leftover pizza slices for takeaway to avert food waste.' (Stöckli et al., 2018).