A Room With a Viewpoint Revisited:

Descriptive Norms and Hotel Guests' Towel Reuse Behavior

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Abstract

Field experiments on descriptive norms as a means to increase hotel guests' towel reuse (Goldstein, Cialdini, & Griskevicius, 2008) were replicated and extended. In two hotels in Germany (Study 1: N = 723; Study 2: N = 175), descriptive norm messages suggesting that 75% of guests had reused their towels, or a standard message appealing to environmental concerns were placed in guests' bathrooms. Descriptive norm messages varied in terms of proximity of the reference group ("hotel guests" vs. "guests in this room") and temporal proximity (currently vs. two years previous). Reuse of towels was unobtrusively recorded. Results showed that reuse rates were high overall and that both standard and descriptive norm messages increased reuse rates compared to a no-message baseline. However, descriptive norm messages were not more effective than the standard message, and effects of proximity were inconsistent across studies.

Keywords: communication; field experiment; persuasion; public policy; replication; social norm

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Nowadays it is common for travelers to encounter cards placed in hotel bathrooms urging them to reuse their towels. These cards usually appeal to the traveler's environmental consciousness, pointing out the positive effects of towel reuse in terms of saving energy and reducing detergent use. Goldstein, Cialdini, and Griskevicius (2008) were the first to study the effects of a modified approach: providing descriptive norms. Such norms refer to how most others behave in a given situation and thus inform people about what kind of behavior is likely to be appropriate and effective (Cialdini, Kallgren, & Reno, 1991). Studies in a variety of domains have shown that descriptive norms may effectively change behavior (for a review, see Goldstein & Cialdini, 2009). We briefly review the studies by Goldstein and his colleagues, which were conducted in a mid-sized hotel in the Southwestern USA, and then describe two replication experiments that we conducted in hotels in Germany.

In their first experiment, Goldstein et al. (2008) compared two conditions: a standard environmental message ("HELP SAVE THE ENVIRONMENT. You can show your respect for nature ... by reusing your towels during your stay") and a majority descriptive norm ("JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. Almost 75% of guests who are asked to participate in our new resource savings program do help by using their towels more than once ..."). Each appeal was followed by instructions to indicate one's intention to reuse (vs. not to reuse) by placing a used towel over the curtain rod or the towel rack (vs. on the floor). Over a period of 80 days, hotel staff recorded the behavior (reuse vs. no reuse) of those guests who stayed at least two nights. Only observations from a guest's first eligible day were analyzed, so each guest participated only once. Results showed a significantly higher reuse rate for the descriptive norm condition (44.1%) than for the standard condition (35.1%).

In their second experiment, Goldstein et al. (2008) examined how descriptive norms with different reference groups would affect hotel guests' behavior. Although many studies have shown that people conform to the norms of groups with whom they share an important social identity (e.g., Terry & Hogg, 1996; cf. Bohner, Pina, Viki, & Siebler, 2010), Goldstein and colleagues hypothesized that "provincial norms," which they defined as "the norms of one's local setting and circumstances" (p. 476)

should be more powerful, even if they derive from a social category that is less meaningful to a person's social identity. Thus they compared five conditions: the standard environmental message and the hotel guest identity norm message (as in their first study) plus three new normative messages: one referring to guests who stayed in the same room (provincial norm), another to fellow citizens, and a final one referring to men and women as its reference group. All the normative messages stated that about 75% of the reference group had shown the behavior according to a study conducted two years before. As predicted by the authors, the same room condition yielded a higher reuse rate (49.3%) than did the other normative messages combined (42.8%) and the standard message (37.2%). In contrast to this finding, a separate group of participants rated the importance of being a citizen and of being male or female as much more important to their identity than being a hotel guest or a guest in a particular room. Thus, the guests had followed the norm of an immediate, contextual reference group although they probably did not consider this reference group to be relevant to their social identities.

Although Goldstein et al. (2008) acknowledge that the mechanism underlying their observations is not fully clear, they discuss two possibilities. Firstly, people may have learned that local norms are often more diagnostic of appropriate behavior than are more distal norms and may overgeneralize this knowledge to settings where the local norm lacks added diagnosticity. Secondly, people may experience a "unit relationship" (Heider, 1958) with others particularly if they share an uncommon characteristic with them. As staying in the same room is more uncommon than staying in the same hotel, the provincial norm effect may be mediated by a stronger unit relationship.

Evidence within other domains appears to be consistent with these conjectures. In research on self-evaluations, for example, Zell and Alicke (2009, Studies 4 and 5) found that people often rely on low-level, local comparison information while ignoring higher-level, general comparison information, even though they recognize the latter as more diagnostic (see also Darke et al., 1998). In a similar vein, consumer researchers found that purchase decisions may be strongly affected by visible behavior of others in an individual's close environment (Bollinger & Gilllingham, 2012; McShane, Bradlow, & Berger, 2012).

Apart from this related evidence, one published study approximates a direct replication of Goldstein and colleagues' (2008) design. Schultz, Khazian, and Zaleski (2008, Expt. 3) observed a

descriptively (but not significantly) higher towel reuse rate in a "hotel guest" norm condition than in a "same room" norm condition. These apparently diverging results are difficult to interpret, however, as Schultz and colleagues' hotel guest norm condition featured a constant 75% majority, whereas their same room norm condition featured percentages varying between 33% and 92% — reflecting the actual reuse rates that had previously been observed in specific rooms.

We thus decided to directly replicate Goldstein and colleagues' (2008) general vs. provincial norm conditions. In two studies, we also added another factor representing the temporal proximity of the descriptive norm.

Study 1

Method

Participants. Over a five-week period, we collected data on 723 instances of potential towel reuse in all 162 rooms of a four-star hotel located in the center of a mid-sized town in the Northwest of Germany. To ensure that towel-reuse behavior could be attributed to an individual decision, only rooms with single occupancy were included in the study.

Materials and Design. For the duration of the study, the hotel's existing towel-reuse message (a standard environmental appeal on a sticker attached to the bathroom mirror) was replaced by one of five messages printed on table tents. These consisted of laminated cardboard, each visible side measuring 11 cm by 14 cm, and were placed in a salient position near the bathroom mirror. The top third of each side showed a color photograph depicting some bath towels and the hotel's logo. The bottom two-thirds of each side featured the same message in German and English, respectively. The following messages were used:

- Standard environmental message: "Help to save the environment. Every day we clean a great number of towels, many of them are unused. Please help us to protect the environment. You can join us in this program to help save the environment by reusing your towel during your stay."
- Descriptive norm messages: "Join your fellow guests in helping to save the environment. In a study *currently conducted in this hotel* [*that was conducted in this hotel in the fall of 2009*], 75% of the *guests* [*guests who stayed in this room* (#xxx)] participated in our new resource savings program by using their towel more than once. You can join your fellow guests in this program to help save

the environment by reusing your towel during your stay."

Text in italics above, outside and within brackets, represents the two levels of the temporal proximity manipulation and the two levels of the general vs. provicial norm manipulation. These were fully crossed to yield four versions of the descriptive norm message. In the provincial norm conditions, "#xxx" was replaced with the actual room number. Each message ended with instructions to drape one's used towel over the towel rack (vs. place it on the floor or in the shower) to indicate one's intention to reuse (vs. not to reuse).

During five weeks, each of the five message versions was used in one of the five floors of the hotel. Each week on Monday, the assignment of a given message to a given floor was changed according to a Latin square design, so that each message was present in each floor for exactly one week.

Procedure. The housekeeping staff was thoroughly instructed on how to record reuse rates. To keep procedures as simple as possible, staff members kept track of towels placed on the towel rack on their usual worksheets, which were modified only slightly for the purpose of our study. Each day they ticked separate boxes for each hand towel reused and for each bath towel reused. The Executive Housekeeper served as our primary gatekeeper; she monitored proper tracking and confirmed to us that instructions were closely followed.

Test of Manipulations. Because descriptive norms had not been used to influence towel reuse in Germany before, we asked a separate group of pilot participants (N = 64) to estimate how many people would reuse their towel at least once during a hotel stay of more than one night. Estimates varied widely, with a mean of 46% (Md = 48%; SD = 28.2%). Presenting a descriptive norm of 75% thus appeared to be both reasonably credible and potentially effective, being about one standard deviation above people's mean expectancy.

Pilot participants also rated (1) how much each of our messages would make them think of their identity as an environmentally concerned person, as a hotel guest, and as a guest in a particular hotel room, respectively (response scale from 1, *not at all,* to 5, *very much*), and (2) how important to their identity was being an environmentally concerned person, a hotel guest, and a guest in a particular hotel room (response scale from 1, *not at all important,* to 7, *very important*). Pairwise comparisons showed no differences in the extent to which the messages made participants think of the relevant identity

(overall $M = 3.52$), all $p > .28$. However, clear differences emerged for the importance participants ascribed to the identities of environmentally concerned citizen ($M = 5.16$), hotel guest ($M = 3.84$), and guest in a particular room ($M = 2.98$), all $t(62) > 4.29$, all $p < .001$.[1] Thus, as in Goldstein et al. (2008, Expt. 2), the identity linked to the provincial norm was considered the least personally important, and both the general and provincial norm identities were considered less important than that of an environmentally concerned individual.

Results and Discussion

We first analyzed overall towel reuse rates as defined by Goldstein et al. (2008), counting as an instance of reuse if any used towel was placed on the towel rack. Reuse rates were much higher overall (82.3%) than in the original studies (for percentages by condition, see Table 1). A planned comparison showed that the four descriptive norm conditions combined (81.9%) did not fare better than the standard environmental message (83.7%), $\chi^2(1, N = 723) = 0.24$, p = .62. Further planned comparisons showed that, in contrast to the original study, the same room norm conditions (78.0%) produced a significantly *lower* compliance rate than did the hotel guest norm conditions (85.6%), $\chi^2(1, N = 576) = 5.67$, $p = .017$, $\phi = .10$. The temporal proximity manipulation had no significant effect, $\chi^2(1, N = 576) = 0.27$, $p = .60$.

The specific reuse rates of hand towels and bath towels showed parallel patterns (see Table 1). The reversal of the provincial vs. general norm effect was significant for hand towels, $\chi^2(1, N = 571) = 4.17$, $p = .041$, $\phi = .09$, and marginal for bath towels, $\chi^2(1, N = 572) = 3.01$, $p = .083$, $\phi = .07$.

These results suggest that towel reuse rates may be much higher overall in Germany than they are in the USA, although the hotel studied by Goldstein et al. (2008) and the hotel of the present study may differ on other (unknown) dimensíons that may explain the difference. More importantly, the results do not support the notion that descriptive norm messages fare any better than the standard environmetal message. And finally, the provincial norm relating to guests staying in the same room was significantly less effective than the general norm relating to hotel guests.

A limitation of the present study is that we do not know how guests would have behaved if there were no message at all urging them to reuse their towels. Therefore, in order to test whether the standard and normative messages would increase towel reuse rates compared to a no-intervention

baseline, we repeated our study in a hotel that had no environmental program implemented.

Study 2

Method

Participants. Over a six-week period, we collected data on 175 instances of potential towel reuse in all 56 rooms of a three-star hotel located in the outskirts of the same town as in Study 1. Again, only rooms with single occupancy were included in the study.

Materials, Procedure, and Design. Materials and procedure were the same as in Study 1. The design was very similar, with the addition of a one-week, no-message baseline observation period that preceded the experimental intervention. During the following five weeks, the same five conditions as in Study 1 were run in such a way that each condition appeared once on each floor of the hotel.

Results and Discussion

The overall towel reuse rate (74.3%) was somewhat lower than in Study 1 (see Table 2 for percentages by condition). This was mainly due to the no-intervention baseline (57.6%), which differed markedly from the five intervention conditions combined (78.2%), $\chi^2(1, N = 175) = 5.95$, $p = .015$, $\phi = .18$. Furthermore, the standard environmental message (91.7%) tended to be more effective than the four descriptive norm messages combined (75.4%), $\chi^2(1, N = 142) = 3.08$, $p = .079$, $\phi = .15$. Focusing on the descriptive norm conditions, in this study the provincial norm messages (81.5%) appeared to be more effective than the general norm messages (70.3%), although this difference was not significant, $\chi^2(1, N = 118) = 1.97$, $p = .16$, $\phi = .13$. The temporal proximity manipulation again had no significant effect, $\chi^2(1, N = 118) = 0.30$, $p = .59$. Separate analyses for hand towels and bath towels yielded comparable results (see Table 2 for percentages by condition).

Thus, despite its relatively small number of observations, Study 2 showed that presenting any message increased towel reuse rates compared to not presenting a message. As in Study 1, the standard environmental message again was highly effective; it also tended to be more effective than the presentation of descriptive norms. Whereas the temporal proximity manipulation made hardly any difference, there was a nonsignificant trend toward greater effectiveness of the provincial norm than the general norm. In this regard Study 2 descriptively replicated a key finding of Goldstein et al. (2008) but diverged from results of our own Study 1.

General Discussion

Despite highly similar procedures, our field experiments in two German hotels yielded partly divergent findings compared to the results that Goldstein and colleagues (2008) obtained in a U.S. hotel. First of all, overall reuse rates were dramatically higher in the current studies, ranging roughly between 70 and 90 percent in the message conditions, compared to the U.S. studies, where they ranged between 35 and 50 percent. Even the no-message baseline in our Study 2 was higher than reuse rates in any of the message conditions in Goldstein et al. (2008). These figures may reflect a general difference in environment-related attitudes and behaviors between the two countries (see Rosenthal, 2009; World Bank, 2013).

The higher baseline in environmental behaviors may be taken to suggest that a descriptive norm of 75% simply is not high enough to have much of an added effect over and above the standard environmental message – which indeed it did not. On the other hand, our pilot participants' estimates of towel reuse rates were well below 75%, so we may assume that the guests participating in our experiments did not perceive the normative messages as presenting a surprisingly low figure. In a more general sense, the issue of greatly diverging baselines points to conceptual problems in trying to devise a "direct" replication: Identical operationalizations simply may take on different meanings for people in different cultures (see, e.g., Sedikides, Gaertner, & Toguchi, 2003). So one may argue that presenting a descriptive norm of, say, 90% to German hotel clients might have constituted a closer replication of Goldstein et al. (2008) than sticking to their original figure of 75%.

May cultural differences in environmental awareness also explain the reversal of the provincial norm effect in Study 1? Individuals who strongly value environmental protection may generally be more involved when processing the normative messages. They may thus be more sensitive to variations in the sample size connected with a descriptive norm. Indeed, research by Darke and colleagues (1998) has shown that people who are highly involved in an issue take into account the sample size from which a majority norm derives, and are more persuaded by large-sample rather than small-sample majorities. In a similar vein, the standard environmental message may be more effective with German recipients because of its clear focus on environmental protection, which may match the recipients' concerns more closely. Future research should directly address these possibilities.

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Footnotes

[1] Two questionnaire versions were used, one showing the descriptive norm messages in the "current study" version, and one showing them in the "completed study" version. Also, the order in which identities were presented was counterbalanced. Neither of these variations had any effect on participants' ratings, all $p > .28$.

Table 1

Towel Reuse Rates (in Percent) by Message Condition (Study 1)

Dependent variable	Message condition				
	Completed study / Hotel guests (n = 147)	Completed study / Same room (n = 157)	Standard environmental message (n = 147)	Current study / Hotel guests (n = 149)	Current study / Same room (n = 115)
Any towel reused	84.5	78.1	83.7	86.8	77.8
Hand towel reused	70.1	61.0	68.5	72.5	66.4
Bath towel reused	72.1	66.7	66.2	73.2	65.0

Note. Due to occasional missing values, valid *n* per condition for hand towel reuse, from left to right, was 146, 156, 146, 147, 114, and valid *n* per condition for bath towel reuse, from left to right, was 146, 156, 148, 147, 115.

Table 2

Towel Reuse Rates (in Percent) by Message Condition (Study 2)

Dependent variable	Message condition					
	No-Message Baseline (n = 33)	Completed study / Hotel guests (n = 32)	Completed study / Same room (n = 32)	Standard environmental message (n = 24)	Current study / Hotel guests (n = 32)	Current study / Same room (n = 22)
Any towel reused	57.6	68.8	78.1	91.7	71.9	86.4
Hand towel reused	45.5	65.6	65.6	87.5	68.8	81.8
Bath towel reused	42.4	68.8	78.1	87.5	71.9	81.8