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Breaking and creating habits on the working floor: A field-experiment on the power of implementation intentions ☆

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Abstract

Previous research has shown that implementation intentions are effective tools to promote new behavior. The present study aimed to provide the first evidence that conscious planning is an effective tool in replacing well-learned habits with new habits. This was tested in a field-experiment on repetitive behavior in the domain of recycling, using 109 employees of a tele-company as participants. Recycling behavior of the participants was observed by the actual amount of paper and the number of plastic cups in their personal wastebaskets. Following a pre-measure, participants were assigned to either implementation intention conditions, conditions in which an eye-catching facility was placed to promote recycling behavior, or control conditions. Recycling behavior was substantially improved in the facility as well as the implementation intention conditions in week 1 and week 2 and still 2 months after the manipulation. These data supported our hypothesis that planning breaks down unwanted habits and creates new ones.

Keywords: Habit; Planning; Implementation intentions; Breaking habits; Goal-directed behavior; Field-experiment; Recycling; Environmental behavior; Self-regulation

Introduction

Habits are efficient modes of goal-pursuit. When our goal-directed behaviors are well-learned through repetition in stable environments, goal-relevant situational cues may automatically elicit these behaviors. This way, we may attain our goals without conscious thought. However, when we try to change our habits, e.g., because other contradictory goals or action programs have become more important in the habitual situation, it seems very difficult to alter our automatic habitual responses (Aarts & Dijksterhuis, 2000a; Heckhausen & Beckmann, 1990; Reason, 1990).

What kind of strategies would be successful for *breaking* unwanted habitual behavior and *creating* 'wanted' habits? Habits are considered to be situationally guided goal-directed behaviors, and hence, behavioral responses are automatically elicited when the situation arises (Aarts & Dijksterhuis, 2000b; Bargh & Gollwitzer, 1994). Theoretically, then, strategies to successfully break habits should fit in with these habitual processes. In the present paper, we will investigate two potentially powerful tools to change habitual behavior. The first refers to conscious planning. Strikingly resembling habitual processes, recent studies have shown that after forming an implementation intention, a goal-directed behavior becomes strongly linked to situational cues and becomes automatically activated because of these situational cues. The processes underlying effects of planning suggest that the formation of implementation intentions may be a strong tool in order to break habitual behavior and create new habits.

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Second, the importance of situational cues in the onset of habitual behavior suggests that eye-catching changes in the situation may affect habitual behavior by facilitating the performance of alternative behaviors and turn them into new habits. Therefore, we also investigate the installation of such facilities as environmentally prepared cueing tools in breaking old unwanted habits and creating new ones, and to compare its effects with mentally prepared cueing—that is, by conscious planning.

Implementation intentions

Gollwitzer (1993, 1999) distinguishes *goal intentions*, which refer to intentions to achieve a certain goal, from *implementation intentions*, which refer to intentions that specify, *where*, *when*, and *how* these goals are acted upon. Goal intentions have the form of "I intend to do X ("I intend to exercise") whereas implementation intentions follow the proposition "In situation *Y*, I will do *Z*" (e.g., "When I come home from work, I put on my sneakers and go for a run").

Several studies have shown that furnishing goals with implementation intentions can have a strong effect on goal-pursuit. Typically, participants are first instructed to attain a certain goal and then asked to write and visualize when, where and how they will act on that goal. The impact of implementation plans on behavioral performance has been shown across various behaviors, ranging from completing an assignment (Gollwitzer & Brandstätter, 1997) to shopping at a bioshop (Bamberg, 2002; see for overviews Gollwitzer, 1999; Gollwitzer & Sheeran, in press) and can be stunningly strong. For example, Orbell, Hodgkins, and Sheeran (1997) showed that participants who had formed implementation intentions for performing breast self-examination performed at the level of 100%, compared to 53% for control participants.

Similarities between habits and implementation intentions

Subsequent studies have provided more clarity with regard to the mechanism producing these strong effects of planning. These studies revealed striking similarities in the processes underlying planning and habits. For example, Aarts and Dijksterhuis (2000b) established that non-habitual travel mode users who formed implementation intentions as to using the bicycle showed automatic bicycle responses to travel goal situations, just as habitual bike users. Forming implementation intentions creates a strong mental link between a situation and a behavioral response. Therefore, when the person encounters the goal-relevant situation specified in the implementation intention, the goal-directed behavior is automatically initiated (Aarts & Dijksterhuis, 2000b; Brandstätter, Lengfelder, & Gollwitzer, 2001; Webb & Sheeran, 2003).

Furthermore, forming implementation intentions increases the mental accessibility of situational cues, and thus facilitates the activation and subsequent execution of the associated behavior (Aarts, Dijksterhuis, & Midden, 1999). Hence, the onset and the proceeding of behavior have been delegated to the environment. Both habits and implementation intentions thus seem to consist of automatic behavioral responses elicited by situational cues. The former as a result of repeated actions in a stable environment, the latter as a result of a single act of planning (see also Bargh & Gollwitzer, 1994; Orbell et al., 1997).

Creating habits by forming implementation intentions

The similarities between the mental representation of habits and implementation intentions suggest that implementation intentions are potentially powerful tools to create new habits. If so, forming implementation intentions renders the desired and planned behavior more likely to be performed frequently over time. Tests for these effects are generally lacking.

In a study of Sheeran and Orbell (1999) on vitamin C supplement intake, it was shown that planning affected repetitive behavior across a period of 2 weeks. However, because participants were aware of the fact that their behavior was monitored, it is possible that their results were caused by processes of public commitment rather than planning. Studies on public commitment have shown that behavior is more in line with goals or intentions when (1) these intentions are explicitly stated in front of other people (e.g., a group or specific person) and (2) one is aware that these individuals will monitor the behavior (e.g., Schlenker, Dlugolecki, & Doherty, 1994). For participants within the implementation intention condition, both elements of public commitment were present. First, participants in the planning conditions expressed their intentions to take the vitamin pills in the presence of the experimenter, by responding to the questions concerning where, when and how they planned to take the vitamin pills. Second, they knew that the experimenter would visit the participants in their dormitories and, in the presence of the participants, would count the number of pills that were actually taken. This enhanced public behavioral commitment may have induced all kinds of motivational differences (e.g., self-presentation motives) that may explain the differences between the implementation intention and the control condition.

Thus, a strong test of the idea that planning may create habits is as yet not available. To convincingly demonstrate this idea, a study should contain a measure of overt behavior that is frequently performed. Furthermore, and importantly, participants should not be aware of the fact that their behavior is being monitored.

Breaking habits by forming implementation intentions

Is it also possible to break habits[1] by forming implementation intentions? Nearly, all studies on planning thus far

[1] Breaking habits is here defined as stably changing an old behavior that was frequently performed within a specific context into new behavior that is repeatedly performed within that same context.