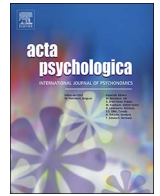




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More than planned: Implementation intention effects in non-planned situations

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ABSTRACT

Forming implementation intentions (i.e., if-then planning) is a powerful self-regulation strategy that enhances goal attainment by facilitating the automatic initiation of goal-directed responses upon encountering critical situations. Yet, little is known about the consequences of forming implementation intentions for goal attainment in situations that were not specified in the if-then plan. In three experiments, we assessed goal attainment in terms of speed and accuracy in an object classification task, focusing on situations that were similar or dissimilar to critical situations and required planned or different responses. The results of Experiments 1 and 3 provide evidence for a facilitation of planned responses in critical and in sufficiently similar situations, enhancing goal attainment when the planned response was required and impairing it otherwise. In Experiment 3, additional unfavorable effects however emerged in situations that were dissimilar to the critical one but required the planned response as well. We discuss theoretical implications as well as potential benefits and pitfalls emerging from these non-planned effects of forming implementation intentions.

1. Introduction

Forming implementation intentions (Gollwitzer, 1993, 1999, 2014) is a self-regulation strategy that helps people to attain their goals. It entails mentally linking a goal-directed response to a critical situation in an if-then format: “If critical situation *S* is encountered, then I will initiate goal-directed response *R*!” Thus, an implementation intention specifies exactly in which situation and how one wants to act towards realizing one’s goals. This distinguishes them from mere goal intentions, which only specify a desired outcome (Triandis, 1977): “I intend to reach outcome *O*!” or “I intend to show behavior *X*!” Numerous empirical studies have demonstrated that implementation intentions promote goal achievement more effectively than goal intentions (meta-analytic reviews by Adriaanse, Vinkers, De Ridder, Hox, & De Wit, 2011; Bélanger-Gravel, Godin, & Amireault, 2013; Gollwitzer & Sheeran, 2006; Hagger & Luszczynska, 2014).

The pervasive effects of implementation intentions on goal attainment are assumed to rely on two cognitive processes (Gollwitzer, 1999; Webb & Sheeran, 2008). First, the mental representation of the critical situation specified in the if-part becomes a highly activated and easily accessible cue. As a consequence, the critical situation receives

attentional and perceptual priority (Achtziger, Bayer, & Gollwitzer, 2012; Janczyk, Dambacher, Bieleke, & Gollwitzer, 2015) and is readily detected in the environment (Aarts, Dijksterhuis, & Midden, 1999; Webb & Sheeran, 2007). Second, a strong link is forged between the critical situation and the goal-directed response specified in the then-part. This renders the goal-directed response automatic, enabling an immediate (Gollwitzer & Brandstätter, 1997) and efficient (i.e., even when cognitive load is high; Brandstätter, Lengfelder, & Gollwitzer, 2001) initiation of it which does not need further conscious intent (Bayer, Achtziger, Gollwitzer, & Moskowitz, 2009) and is hard to control (Wieber & Sassenberg, 2006).

A compelling body of literature attests that implementation intentions promote goal attainment because they facilitate the automatic initiation of a planned response once a specified critical situation is encountered. Yet, surprisingly little attention has been paid to the consequences of having formed implementation intentions on goal striving when people encounter situations that were *not* specified in the if-then plan. Will people initiate planned responses in situations resembling the critical one? Can they withhold performing planned responses if such similar situations require different responding? And how efficiently will people initiate planned responses in situations dissimilar

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to the critical situation? As implementation intentions are a heavily used and a widely recommended self-regulation strategy in several domains (e.g., health behavior, academic achievement, and interpersonal issues), answering these questions is mandatory from both a theoretical and practical point of view. We therefore systematically analyze the consequences of forming implementation intentions on goal striving in situations that are similar or dissimilar to critical situations and require planned or different responses.

Why should we expect that forming implementation intentions affects behavior in situations that were not specified in the if-then plan, and what would those effects probably look like? An interesting perspective on this question is provided by research on associative learning (e.g., Martin & Pear, 2016; Pierce & Cheney, 2004) which emphasizes that responses associated with a certain situation can be evoked in sufficiently similar situations as well (e.g., Bush & Mosteller, 1951; Pearce, 1987; Shepard, 1987). This *generalization effect* has been demonstrated for a variety of responses, including habitual (Verplanken, Aarts, van Knippenberg, & van Knippenberg, 1994; Wood, Tam, & Witt, 2005), emotional (Lissek et al., 2008), and attitudinal ones (Till & Priluck, 2000). In the domain of goal striving via implementation intentions, a generalization effect could be reflected in facilitated performance of a planned response not only in the critical situation but also in situations that are sufficiently similar. Support for this reasoning has been provided in a study on driving behavior (Brewster, Elliott, McCartan, McGregor, & Kelly, 2016), which demonstrated that implementation intentions formed to avoid speeding were effective in specified critical situations (e.g., “after I have been stuck behind a slow-moving vehicle”) as well as in similar situations (“after I have been stuck in stationary traffic”) but not in dissimilar situations (“when traffic lights turn against me”). We therefore assume that forming implementation intentions facilitates the initiation of the planned response both in critical and in sufficiently similar situations. Considered conjointly with the idea that the effects of implementation intentions are based on automated action control and therefore hard to control (e.g., Wieber & Sassenberg, 2006), we expect facilitated goal attainment in similar situations when the planned response coincides with the required response (as in Brewster et al.’s study) and unfavorable effects when a different response is required in those similar situations.

The generalization hypothesis remains silent on the consequences of forming implementation intentions in situations that are dissimilar to the critical one. Should we therefore expect that implementation intentions have no effect on goal attainment in these situations? Prior research suggests otherwise, demonstrating that people are less likely to initiate the planned response in situations they did not specify in their implementation intentions (Masicampo & Baumeister, 2012; Parks-Stamm, Gollwitzer, & Oettingen, 2007). This observation is commonly explained by referring to the limited availability of cognitive resources (Kahneman, 1973; Wegner, 1994): When people form implementation intentions (e.g., during the instruction phase of an experiment) cognitive resources are pulled towards establishing the association between the critical situation and the planned response (Martiny-Huenger, Bieleke, Oettingen, & Gollwitzer, 2016), which in turn implies a distraction from establishing other associations. As a consequence, the mental representation of alternative situation-response links might be selectively derailed during the actual task performance. Importantly, this cognitive distraction hypothesis should not be restricted to different situations requiring the planned response but should also apply to different situations requiring different responding – although prior research has not addressed this latter prediction explicitly. In the present research, we therefore expected implementation intentions to have unfavorable effects in situations that are dissimilar to the critical one, irrespective of whether these situations require the planned response (as observed in prior research) or not.

To conclude, a review of the existing literature makes it conceivable that forming implementation intentions affects goal attainment in a more complex way than often assumed, depending on the specific

situations people encounter and the responses required in these situations. Based on the generalization hypothesis, we expect that the planned response will be facilitated in situations that are sufficiently similar to the critical one, which will in turn have beneficial effects on goal attainment when these situations require the planned response and unfavorable effects otherwise. Based on the cognitive distraction hypothesis, we predict unfavorable effects in situations that are dissimilar to the critical one irrespective of the required response.

In all of our experiments, we compared goal attainment between groups of participants who formed implementation intentions versus goal intentions. In cognitive experiments on implementation intention effects, enhanced goal attainment in critical situations (e.g., faster and/or more accurate responses) is commonly established by contrasting it to goal attainment with mere goal intentions (Gollwitzer & Sheeran, 2006). We therefore evaluated enhanced versus impaired goal attainment in non-planned situations in an analogous manner, always focusing on the comparison between implementation and goal intentions. For instance, supportive evidence for the generalization hypothesis requires that implementation intention participants respond faster and/or more accurately than goal intention participants not only in critical situations but also in similar situations requiring the planned response.

2. Present research

Implementation intentions are well-known to enhance goal attainment by facilitating the initiation of planned responses upon encountering critical situations. However, the consequences of having formed implementation intentions in situations that were not specified in the if-then plan have not yet been investigated systematically. In the present research, we addressed this issue across three experiments with different variations of a stimulus classification task, instructing participants to classify various geometric objects as quickly as possible. Additionally, participants formed either goal or implementation intentions to quickly respond to a specified critical stimulus. In Experiment 1, we focused on how forming goal versus implementation intentions affects performance in trials with (1) stimuli that are similar to the critical one and also require the planned response versus (2) dissimilar situations requiring a different response. In Experiments 2 and 3, we varied the similarity of situations and responses independently from each other, which allowed us to additionally examine the effects of forming goal versus implementation intentions on behavior in (3) situations that are similar to the critical one but require a different response and in (4) dissimilar situations requiring the planned response. Moreover, we added baseline and posttask goal commitment measures to rule out the possibility that behavioral findings between conditions are confounded by differences in how strongly participants are committed to their performance goals. Based on prior research, however, we did not expect differential goal commitment (Webb & Sheeran, 2007).

3. Experiment 1

In Experiment 1, participants formed implementation intentions in which they planned to respond quickly to a critical stimulus. In line with implementation intention theory, we expected them to respond faster and/or more accurately to the critical stimulus than participants who had merely formed goal intentions. We also predicted that this beneficial effect on performance evinces for stimuli that were similar to the critical one and required the planned response as well (i.e., generalization effect). In contrast, we expected implementation intentions to induce slower and/or less accurate responses to stimuli that are different from the critical one and require different responding (i.e., cognitive distraction).

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