The Dynamics of Goal Revision: Updating the Discrepancy-Reducing Model of Self-Regulation

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Existing research on goal-directed behaviors mostly treats goals as static entities rather than dynamic functions. This research examines the dynamics of goal revision by revisiting and revising Carver and Scheier’s (1981) classic discrepancy-reducing model of self-regulation. We incorporate an additional element, a goal calibrator, into this model. The goal calibrator is directed by an S-shaped function of goal-performance discrepancy, generating updated goals for further monitoring. This S-shaped function features the common properties of proportionality and diminishing sensitivity for both self-set goals and assigned goals, while exhibiting failure aversion for self-set goals and satisficing for assigned goals.

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Existing research on goal-directed behaviors has largely focused on the process in which people strive for a static goal (Austin and Vancouver 1996; Carver and Scheier 1981; Locke and Latham 1990). However, relatively little attention has been directed toward the dynamic process of goal setting. As Fishbach and colleagues have demonstrated (Fishbach and Dhar 2005; Fishbach, Dhar, and Zhang 2006), goals are not always static. Rather, people frequently revise their goals upward or downward based on the goal-performance discrepancy.

This research examines the dynamics of goal revision by updating the discrepancy-reducing model of self-regulation (Carver and Scheier 1981, 1998). Based on cybernetic control theory (Miller, Galanter, and Pribram 1960), Carver and Scheier’s classic model of self-regulation suggests that people continuously monitor the discrepancy between their current state and a desired standard, and that goal-directed behaviors are aimed at reducing such discrepancies.

One limitation of this model is that it treats the goal as a static standard. In this research, we propose instead that the goal is a dynamic function, specifically, an S-shaped function of the goal-performance discrepancy. Based on this proposition, we incorporate an additional element—“Goal Calibrator”—into Carver and Scheier’s model. In our revised model, the goal-performance discrepancy serves not only as an input to the system, as suggested by the original model, but also as the input to the goal calibrator. This goal calibrator is directed by an S-shaped function, generating the updated goal for further monitoring. Further, the S-shaped function features the common properties of proportionality and diminishing sensitivity for both self-set goals and assigned goals, while exhibiting failure aversion for self-set goals and satisficing for assigned goals.

A series of four experiments provide empirical support for our theorizing. Study 1 provides initial evidence for our hypothesized goal revision for self-set goals. In the context of saving money, we used a one-factor between-subjects design (discrepancy valence: positive vs. negative). The goal-performance discrepancy was manipulated by giving hypothetical feedback. Participants were asked to imagine setting up a financial goal of saving as much money as possible for each of five consecutive months. They were asked to write down their desired saving amount for the first month. Then they were presented with a hypothetical performance outcome (e.g., you saved 15% more vs. less than your goal). Based on the feedback, participants were asked to set up their financial goal for the next month, and the next feedback was presented after that. These procedures were repeated for five iterations. The performance outcomes for each month were random integers between 15% and 19%, always either positive or negative based on feedback condition. A 2 (discrepancy valence) x 5 (month) mixed ANOVA yielded a significant interaction (F(4,40)=6.45, p<.001), such that those with positive discrepancy indicated the same amount of effort in each trial, whereas those with negative discrepancy indicated increasingly more effort to strive for the goal.

Study 2 replicated the effects in another context, and further investigated the effort exertion under different discrepancy valence. We used a similar design as study 1, but in the context of working out with the goal of burning as many calories as possible on the treadmill for five consecutive days. Consistent with our hypotheses, a 2 (discrepancy valence) x 5 (day) mixed ANOVA yielded a significant interaction (F(4,40)=6.45, p<.001), such that those with positive discrepancy indicated the same amount of effort in each trial, whereas those with negative discrepancy indicated increasingly more effort to strive for the goal.

Study 3 further tested the characteristics of the S-shaped function by examining the interaction between the valence and the magnitude of the discrepancy. Specifically, as to self-set goals, we expected proportionality and diminishing sensitivity for discrepancies with the same valence but differential magnitudes, and failure aversion for discrepancies with the same magnitude but opposite valences. We used a 2(discrepancy magnitude: small vs. large) x 2 (discrepancy valence: positive vs. negative) factorial design. Participants were presented a scenario in which they held a goal of burning 200 calories on the treadmill. The goal-performance discrepancy was manipulated by giving hypothetical outcomes (i.e., burning 10 vs. 110 calories more vs. less). Participants were then asked to establish the calorie goal for the next day based on their current performance. As predicted, a 2x2 ANOVA yielded a significant interaction (F(1,62)=64.64, p<.001). Consistent with our hypothesized proportionality, large discrepancies resulted in greater goal revision than small discrepancies of the same valence. Further, discrepancies had a smaller marginal impact when they were more distant from the origin point, referring to diminishing sensitivity. Moreover, positive discrepancies led to larger goal revision than negative discrepancies of the same magnitude, as the predicted failure aversion.

Study 4 tested the unique property of satisficing for assigned goals. In this study, we utilized a computerized anagram task to establish assigned goals. A similar design as study 1 was used. Participants were first asked to freely set up a goal for the first anagram (i.e., “to find ___% of the possible solutions”). Manipulated feedback was presented after participants submitted their answers (i.e., 5% more vs. less than your goal). Since the anagram tasks were cognitively intensive, only three iterations were implemented. A 2 (discrepancy valence) x 3 (iteration) mixed ANOVA yielded a significant interaction (F(2,39)=10.317, p<.001). As predicted, those with positive discrepancies initially maintained the original goal, but revised the goal upward as they kept receiving positive feedback. By contrast, those with negative discrepancies revised the goal downward based on the negative feedback. These effects demonstrated the property of satisficing for assigned goals.

In sum, the studies reported above provide empirical support for a revised discrepancy-reducing model of self-regulation. This work contributes to the classic discrepancy-reducing model, and therefore the larger goal revision literature.

References
Social Marketing in Action: Increasing Recycling in a Large Organization  
Todd Weaver, Georgia State University, USA

**Topic**

In recent years, environmental sustainability has become a matter of great concern, prompting individuals, communities, and organizations to take up the difficult task of identifying and reducing their environmental impact. By employing Action Research methodology to intervene in a specific problem situation over time, my research will address the important question of whether grassroots social marketing efforts can successfully increase pro-environmental behavior in a large organization.

**Theoretical Frameworks**

The majority of research on pro-environmental behavior has employed two related theories: Ajzen’s theory of planned behavior (1991) and Schwartz’s model of altruistic behavior (1977). Researchers have used these models to examine pro-environmental behavior descriptively by demonstrating the relationship between attitudes, norms, and/or intentions and behavior (e.g., Tonglet, Phillips, and Bates 2004; Guagnano, Stern, and Deitz 1995). However, relatively little research has attempted to identify the processes by which pro-environmental behaviors can be initiated and increased over time. By using Action Research to investigate these behavioral models in a specific context, I hope to gain insight into the behavioral antecedents of pro-environmental behavior as well as the social marketing techniques that can influence these antecedent conditions.

**Methodology**

Action Research involves a collaboration between the researcher and an organization or community that leads to immediate and ongoing improvements in a problem situation (Susman and Evered 1978). Action Research is particularly appropriate for contributions to transformative consumer research (Ozanne and Saatcioglu 2008), which has been championed by the Association for Consumer Research (Mick 2006). Although there are a variety of Action Research approaches, I am employing Susman and Evered’s cycle (1978), which includes the following five steps: diagnosing, action planning, action taking, evaluating, and specifying learning.

The context of this research is a large, southeastern university that is lagging behind other local universities in terms of sustainability efforts. In order to make the scope of this project manageable, I am restricting my focus to recycling, since recycling is a tangible and visible aspect of sustainability that is easily understood by most people. The first step of the Action Research process involves engaging with the community to gain a shared understanding of the problematic situation. I employed a variety of ethnographic methods in this diagnosing stage, including semi-structured interviews with informants that spanned the three focal categories of students, faculty, and staff; an online, qualitative survey of the same groups; observations of recycling behavior on campus; and secondary research that included academic journals, publications of the university, and publications of recycling-oriented organizations, such as the Association for the Advancement of Sustainability in Higher Education (AASHE). These sources revealed three important themes that will guide the subsequent steps of the Action Research project.

**Initial Findings**

The first theme that emerged from my research is that recycling has not been an institutional focus at this university. Unlike many colleges today, there is not a person or department tasked with improving sustainability. Although several groups are undertaking a variety of independent efforts to increase recycling, the overall effectiveness of these efforts seems to be limited by their ad-hoc, uncoordinated approach. Different constituencies hear different messages concerning recycling, see different types of recycling bins in different places, and are not sure that recycling bins will be available in a given space or building. This lack of focus has likely suppressed important precursors for recycling, such as social norms and ascriptions of responsibility in Schwartz’s (1977) model.

The second theme that emerged is that there is a general lack of awareness of the recycling services available on campus. Community members are not sure which materials can be recycled on campus, nor are they confident that materials placed in bins are actually recycled. If awareness were higher, it would be reasonable to expect that recycling would increase at the university even absent any other changes in current practice. For example, in Ajzen’s (1991) model, the lack of awareness would have a detrimental effect on perceived behavioral control over recycling.

Finally, the third theme that emerged from my research is that many students, faculty, and staff members do not regard recycling as an important norm. Just as the university’s administration has not emphasized recycling and other sustainability initiatives, it seems that many campus constituents do not feel that recycling is a priority. Again, this finding relates to the behavioral antecedents identified in the Schwartz (1977) and Ajzen (1991) models. For example, according to Schwartz (1977), the internalization of social norms regarding