

**Social Cognition in the Restricted Environmental Stimulation Technique (REST)  
Poster presented at the 1998 CPA Annual Convention in Edmonton, Alberta**

**ABSTRACT**

This study investigated the possibility that people process social information differently while in a reduced stimulation environment compared to a more stimulus-rich control environment. Prior to spending one hour in the experimental or control environment, 2/3 of all subjects memorized sentences carrying either a Dispositional (1/3) or a Situational (1/3) causal attribution for each given social situation. The remaining 1/3 of all subjects memorized sentences describing factual, non-social situations. This procedure was designed to prime the way in which subjects interpreted social situations presented later in the experiment. Subjects' interpretations of open-ended situations were rated by subjects on 3 attributional dimensions (external/internal, unstable/stable, and specific/global). Baseline attributional styles were assessed by questionnaire administered prior to the experimental session. Differences in attribution, primed and non-primed, are discussed in relation to two somewhat contradictory hypotheses regarding the effects of REST: that it increases cognitive flexibility, and that it increases susceptibility to persuasion.

**INTRODUCTION**

This study combined two intriguing avenues of research from two areas of psychology. Attribution theory, with its study of social perception and attitude formation, was combined with the Reduced Environmental Stimulation Technique (REST), the unique study of human reactions to conditions of reduced stimulation. Specifically, time spent in REST was expected to alter subjects' susceptibility to experimental attempts to prime their attributional responses.

**About Attributional Theory**

Attributional interpretation is a fundamental human social activity. Individuals' social perceptions can be dramatically altered depending upon how they explain the causes of others' behaviour. Attributions are generally divided into two types, Situational and Dispositional. Situational attributions describe behaviours as resulting from causes external to the actor, primarily beyond his or her control. Dispositional attributions consider the actor as the sole or principal agent for his or her own actions. More specifically, attributions have been divided into three interpretative categories: external/internal, unstable/stable, and global/specific.

When circumstances are uncertain, stressful, or follow a familiar pattern, individuals may fall back upon habitual interpretive styles, or biases. Two such biases are the Self-Serving Bias and the Fundamental Attribution Error.

**Self-Serving Bias:** The tendency to take credit (i.e., use a dispositional explanation) for positive events or outcomes involving the self, and to blame other people or circumstances (i.e., use a situational explanation) for negative events or outcomes involving the self.

**Fundamental Attribution Error:** The tendency to make dispositional attributions about the causes of events or outcomes happening to others.

Alternatively, if a bias is unavailable or inappropriate, individuals may rely upon external cues for guidance in making causal attributions. Conformity or social modeling may dictate the attributional response, or, as in the current study, the attribution may be primed by recent prior exposure to a particular attributional style.

**The Restricted Environmental Stimulation Technique (REST)**

REST involves the near-complete elimination of external stimulation. In the chamber version (see Figure 1), subjects sit or lie in a sound-attenuated and light-proofed room. In the flotation version (see Figure 2), subjects lie in a skin temperature, Epsom salt-saturated solution in a sound-attenuated, light-proofed tank. The Epsom salts raise the density of the water such that subjects float easily upon the surface of the water, allowing them to breathe normally.



The result is a significant reduction in tactile stimulation and the illusion of weightlessness. Flotation REST was the environment of interest in this study and the chamber version was modified (lights left on and music played) and used as a control condition, referred to as the Light Room condition. To provide a non-laboratory second control condition, some subjects were told to

occupy themselves somewhere else on campus for an hour, referred to as the Walk-Away condition.

The reported effects of flotation REST are numerous and diverse, but remarkably difficult to quantify. Equally elusive are theories to explain the more reliable effects. The most relevant theories for the current study are: (1) the Cognitive Flexibility Theory, which suggests that REST induces a state of increased cognitive flexibility or creativity, and (2) the Susceptibility to Persuasion Theory, suggesting that REST can increase one's susceptibility to persuasive messages.

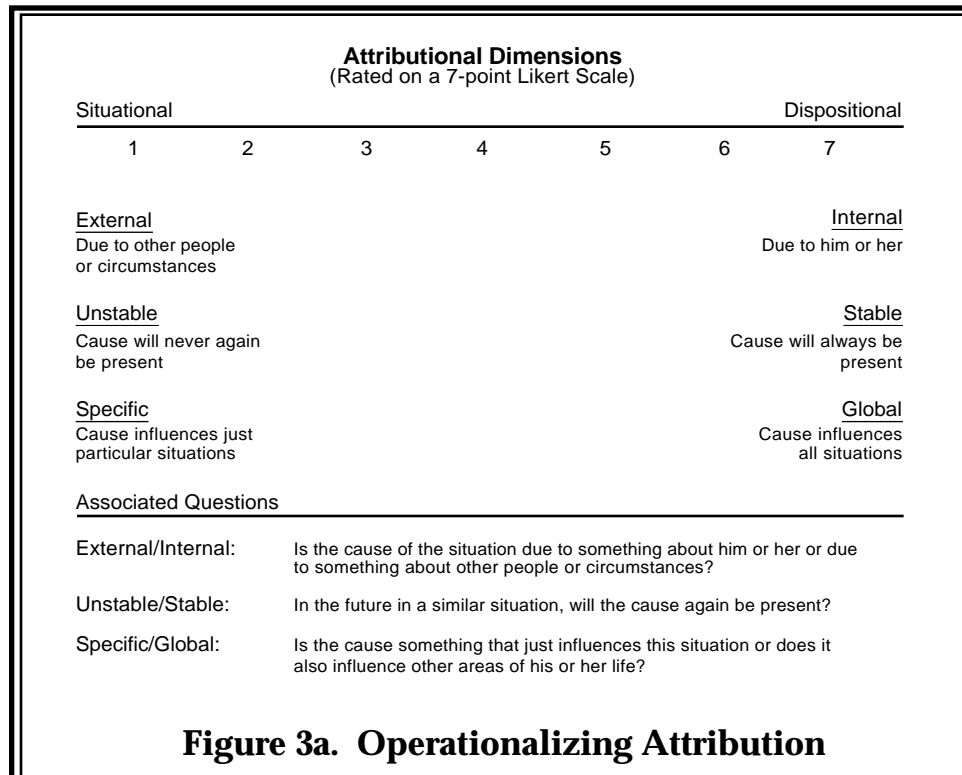
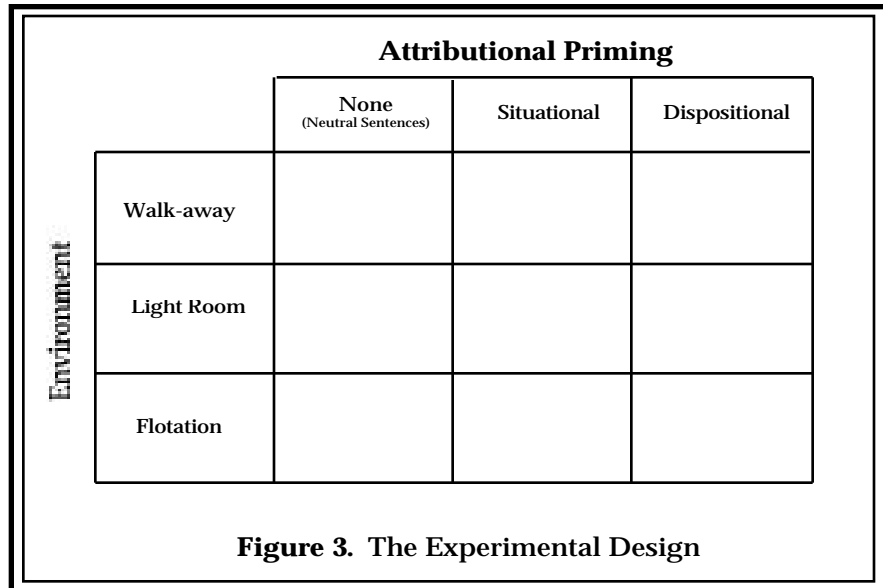
### HYPOTHESES

**Cognitive Flexibility Hypothesis:** Subjects experiencing the flotation REST environment will be less likely than those in control environments to use cognitive shortcuts when interpreting ambiguous social situations. That is, floaters' responses will be less likely to follow patterns indicative of such biases as the Self-Serving Bias or the Fundamental Attribution Error and they will be less susceptible to outside influence, such as the attributional priming.

**Cognitive Flexibility x Susceptibility to Persuasion Hypothesis:** Although the pre-experimental tendencies of subjects in the flotation REST environment will become weaker due to increased cognitive flexibility, this will render them more susceptible to external cues such as the attributional style primed by the experimenter.

### METHODS

90 subjects, 45 female and 45 male, were randomly distributed across the three environmental conditions (Float, Light Room, and Walk-Away) and three attributional priming conditions (Situational, Dispositional, or none). There were thus 10 subjects in each of the resulting 9 different conditions of this 3 x 3 (Environment x Priming) experimental design (see Figure 3). Priming was accomplished by having subjects memorize 5 sentences, all written in one of the two attributional styles or, for the no priming condition, describing factual, non-social situations. After completing the priming tasks subjects spent an hour experiencing their experimental environment. While still in the environment, subjects were given the "Story Telling" task. This involved elaborating on 4 prompted situations and then rating each resulting story for the three attributional dimensions and story valence. In addition to these measures, a baseline measure of individual attributional style was obtained prior to priming using the Other Attributional Style Questionnaire (O-ASQ).



## RESULTS

The data were analyzed in two different ways: (1) using the O-ASQ as time 1 in a repeated measures analysis (Full Model analysis), and (2) analyzing the experimental data alone (Story Ratings analysis). Furthermore, separate analyses were conducted for each of the attributional dimensions (external/internal, unstable/stable, and specific/global). In the full model, the following results were obtained:

For the external/internal (E/I) dimension only, a significant interaction was found between the source of the subjects' ratings (O-ASQ vs. Story Ratings) and the type of attributional priming experienced,  $F(2, 81) = 4.42, p < .02$  (see Figure 4). Planned comparisons revealed that this difference was due largely to the different reactions of subjects to the negative and positive stories. More specifically, for the negative stories, subjects receiving Dispositional or no priming, oddly enough, provided significantly more external ratings of the stories than of the O-ASQ scenarios, whereas for positive stories it was the Situationally primed subjects who gave the more external ratings. There were no significant differences among any of the factors for the O-ASQ ratings alone.

For the unstable/stable (U/S) dimension, the Story Ratings were significantly more unstable, compared to the O-ASQ, for the subjects experiencing flotation REST only,  $F(2, 81) = 5.57, p < .01$  (see Figure 5). A similar result was found for ratings on the specific/global (S/G) dimension.

Another result found for both the U/S and S/G dimensions may underlie the different reactions subjects seem to have had to negative as opposed to positive scenarios throughout the experiment. Looking at the data for the U/S ratings, there was a general tendency for subjects to rate the negative stories as resulting from more unstable causes than the negative O-ASQ items, whereas this trend was reversed for the positive items in each case,  $F(1, 81) = 104.71, p < .0001$  (see Figure 6).

At the level of the story ratings analysis, the following results were obtained: For the E/I dimension, there was a significant interaction between the type of attributional priming and the valence of the rated stories,  $F(4, 162) = 3.01, p < .02$ . Planned comparisons suggest that the difference was due to a tendency for Dispositionally primed and unprimed subjects to provide more internal ratings for positive stories and more external ratings for negative stories, whereas the Situationally primed subjects gave essentially neutral ratings across all story valences (see Figure 7).

Finally, for the U/S ratings, there was a significant interaction between the experimental environment and the valence of the rated stories,  $F(4, 162) = 2.72, p < .05$ .

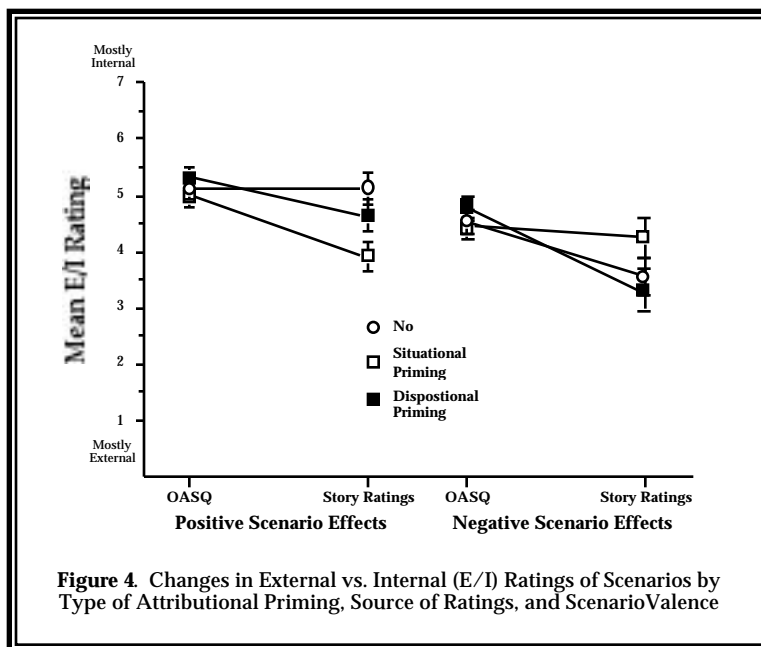


Figure 4. Changes in External vs. Internal (E/I) Ratings of Scenarios by Type of Attributional Priming, Source of Ratings, and Scenario Valence

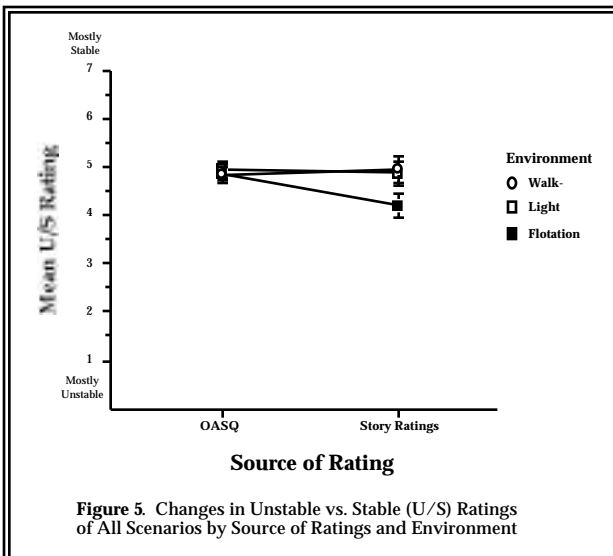


Figure 5. Changes in Unstable vs. Stable (U/S) Ratings of All Scenarios by Source of Ratings and Environment

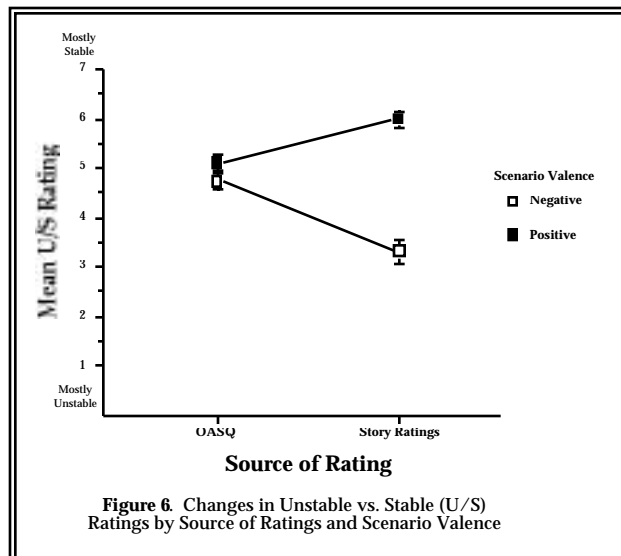
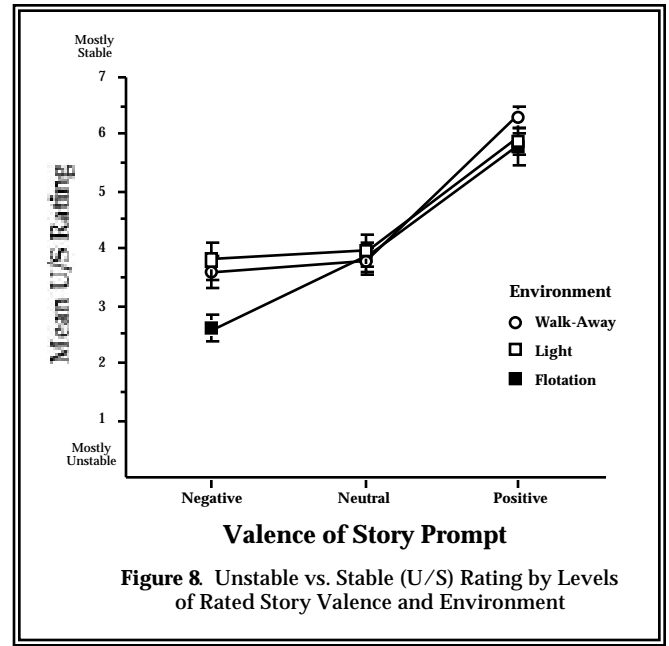
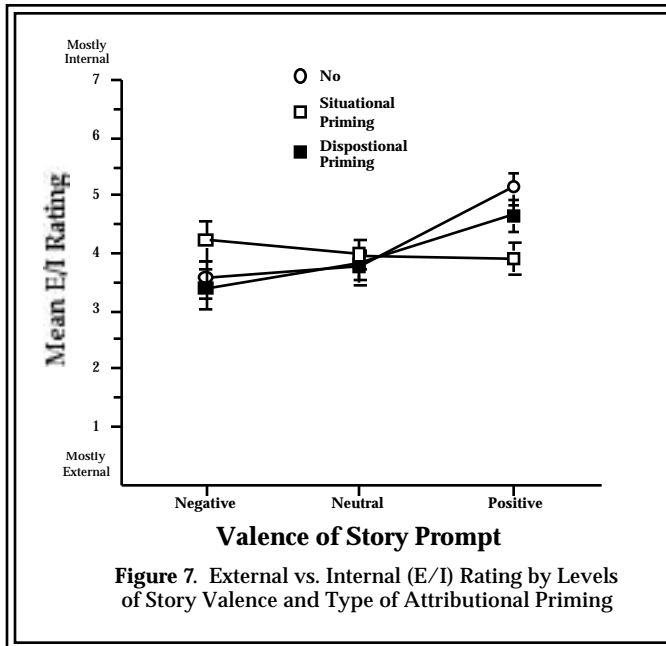


Figure 6. Changes in Unstable vs. Stable (U/S) Ratings by Source of Ratings and Scenario Valence

Planned comparisons confirm that the difference is largely due to the more unstable causes attributed to the negative story by floating subjects, regardless of priming (see Figure 8).



### CONCLUSIONS

- Attributional priming significantly altered subjects' ratings of ambiguous stories.
- The effect of attributional priming interacts with the valence of the rated stories such that the influence of priming appears unusual until the valence is considered.
- Subjects may have a natural tendency to rate positive situations Dispositionally unless they are Situationally primed. In this case, the significant priming result may occur simply because these subjects were induced to think about the situations more carefully.
- Reduced stimulation significantly altered subjects' ratings of stories, but this influence did not interact with the priming effect. It did, however, interact with the valence of the stories, again suggesting that subjects may be more inclined to think about certain situations more carefully when given the opportunity.

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