

Russell Ackoff Doctoral Student Awards for Research on Human Decision Processes Research Grant Proposal

Project Title: **Mixed Feelings: The Cumulative Effect of Multiple Emotions**

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Motivation:

Emotions frequently influence our judgments and behaviors (Eich, Kihlstrom et al. 2000; Forgas and George 2001; Brief and Weiss 2002). For instance, someone who is experiencing anger is more likely to favor riskier decisions (Leith and Baumeister 1996), to perceive injustice (Solomon 1990), and to reject advantageous offers in negotiations (Pillutla and Murnighan 1996). Furthermore, emotions not only affect judgment in situations to which the emotion is related, but also spill over into other areas and affect normatively unrelated judgments (Keltner, Ellsworth et al. 1993). Emotions have also been shown to spread to others (Barsade 2002) and to contribute to a group affective state within work teams (Totterdell, Kellett et al. 1998). These tendencies suggest that emotions may have significant effects on a host of decision-making scenarios and organizational behaviors.

Despite the wealth of emotion research, very little work has pushed beyond individual treatment of emotions, so little is known about how emotional phenomena operate in conjunction. This is surprising, since emotions are rarely experienced in isolation. We do not know, for instance, if there are systematic patterns in the way different emotions mix and interact, nor how long a particular emotional state persists.

Hypotheses:

In the proposed study, we will investigate the cumulative effect of multiple emotions by measuring emotional states after different sequences of emotion inductions. We will consider competing models of emotion interaction. One theory is that there are strong sequencing effects, where each new emotion replaces the last. This would imply that someone could be moved from an unfavorable emotion state to a favorable one simply through the introduction of a positive emotional stimulus. A competing theory suggests that characteristics of certain emotions cause them to dominate others, irrespective of the order in which they are experienced. It is possible, for instance, that emotions high on dimensions such as unpleasantness and effort leave a greater impression on one's mind than those that feel pleasant and easy. If this is true, then it might be imperative to avoid particularly persistent emotional states, if they are damaging to one's ends. These theories are summarized in the following hypotheses:

H1 (Recency): Emotion induced later in a sequence will replace any previously induced emotion.

H2 (Anger Dominance): Emotions higher on the dimensions of negative valence and effort, such as anger, will dominate emotions which are lower in negative valence and effort, such as happiness.

In this study, we will also investigate how long it takes for an emotional state to fade, and if different emotions have different rates of "decay." Because negative, effortful

emotions, such as anger, are characterized by preoccupation, it should follow that they would not decay as fast as positive, low-effort emotions. This leads to our third hypothesis:

H3 (Decay): Negative, high-effort emotions will decay more slowly than positive, low-effort emotions.

A deeper understanding of how emotional stimuli influence our current affective state will not only enrich our understanding of emotion in general, but would also inform prescriptions regarding using emotions constructively. For example, if certain emotions are found to be dominant, it would be imperative to avoid producing them in situations where they are destructive, whereas if sequencing effects are found to be strong, an emotional state can be easily changed with the introduction of a contrasting stimulus.

Proposed Study:

In our pilot study, we found partial support for both the recency hypothesis as well as for the anger dominance hypothesis (Ruedy and Schweitzer 2005). Additionally, our preliminary results suggest that emotions do indeed fade over very short periods of time, and that happiness fades almost twice as quickly as anger. Though the preliminary study represents a promising first step toward understanding the cumulative effects of multiple emotions, there were also a number of limitations which will be addressed in the next phase of this project.

The proposed study will employ similar methods, but will extend our investigation in key ways. Participants will experience one or more emotion inductions (with a cover story as a distraction) and we will collect various indicators of their emotional states. Also, as in the preliminary study, we will look at the emotions *happiness* and *anger*. However, the proposed study will involve a number of improvements over the preliminary study. First, whereas the preliminary study was conducted in the train station, where participants were often distracted, for instance, by concerns about catching their trains, the proposed study will take place in a behavioral laboratory. The control offered by a laboratory is imperative when measuring the subtle emotional states such as “*Happy* followed by *Angry*” versus “*Angry* followed by *Happy*”. Another advantage of using the laboratory is that we can use video clips as emotion inductions. Video clips are ideal for this study because they run for a fixed amount of time, which is very important for our study of emotional decay. This was not the case for the reading passages used in the preliminary study, since participants’ reading speeds are variable.

Additionally, in the proposed study, we will collect a richer set of dependent variables including not only self-report measure but also physiological measures. Physiological measures will allow us to corroborate the self-report measures for a more reliable overall measure of emotional state. We will use electromyography (EMG), which measures muscle activity by detecting surface voltages that occur when a muscle is contracted. EMG has been used to distinguish between positive and negative emotions, by measuring facial expression (Schwartz, Fair et al. 1976; Cacioppo, Bernston et al. 2000).

Summary:

The purpose of this study is to elucidate the systematic ways in which emotional stimuli combine to determine our current emotional state as well as to determine the robustness of those states over time. This work will enrich our understanding of the

mutability of our emotional states, as well as inform prescriptions on how to use emotion combining to best achieve emotional states that are advantageous for work performance and decision-making.

Budget:

Participant payments:	\$1,500 (\$10*150 subjects)
Research assistance:	\$ 550 (\$10*55 hours)
Electromyography equipment:	\$2,000
Conference travel:	\$ 800 (Trip to IACM Montreal, Summer 2006)
Materials (photocopying, etc.):	\$ 150
Total	\$5,000

(This study is not currently being supported by any other grants.)

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