Title of Proposed Project:

Can rewarding effort motivate mastery and rebound from failure?

Brief Abstract
Understanding the factors that promote or interfere with the ability to effectively learn from constructive feedback has important implications for education. We propose to build upon our prior research examining successful feedback encoding and rebound from failures in general knowledge retrieval by exploring the influence monetary reward may have in facilitating encoding of corrective information. In line with our past research demonstrating the importance of motivating students to focus on effort and mastery rather than on normative performance, we will focus on the effects of framing rewards as being based on evidence of effort "competence" rather than performance competence. To determine the locus of any observed effects of rewarding effort, we will compare it to conditions with decreasing amounts of control over reward outcomes, as well a condition that controls for the general novelty of the reward. The findings will contribute to basic research on the role of reward in declarative memory, as well as to an applied understanding how to motivate students to overcome challenges.

Relevant Publications & Scholarship


Dweck, CS, Mangels, JA, & Good, C (2004). Motivational effects on attention, cognition
and performance. In D. Y. Dai & R. J. Stemberg (Eds.), Motivation, emotion, and
cognition: Integrated perspectives on intellectual functioning. pgs. 41-55.


Butterfield, B & Mangels, JA (2003). Neural correlates of error detection and correction in a
semantic retrieval task. Cognitive Brain Research 17: 793-817

Beninger, RJ, Wasserman, J, Zanibbi, K, Charbonneau, D, Mangels, JA, & Beninger, BV
(2003). Typical and atypical antipsychotic medications differentially affect two non-
declarative memory tasks in schizophrenic patients: A double dissociation. Schizophrenia

Mangels, JA, Craik, FIM, Schwartz, M, & Stuss, D (2002). Chronic deficits in item and
context memory following traumatic brain injury: a function of attention, strategy and injury


references for: context-dependent learning, pg. 181; interference, pg. 398-99; mnemonic,
pg. 483; perceptual fluency, pg. 592; primacy effect, pg. 627; proactive interference, pg.
630; serial position effect, pg. 706).

Cabeza, R, Anderson, N, Mangels, JA, McIntosh, AR, Nyberg, L, Houle, S, & Tulving, E
(2000). Age-related differences in neural activity during item and temporal-order memory
197-206.


Cabeza, R, Mangels, JA, Nyberg, L, Habib, R, Houle, S, McIntosh, AR, & Tulving, E
863-870.

Mangels, JA (1997). Strategic processing and memory for temporal order in patients with

Neuropsychological Society, 3, 299-301.

Knowlton, BJ, Mangels, JA, & Squire, LR (1996). A neostriatal habit learning system in

Mangels, JA, Gershberg, FB, Shimamura, AP, & Knight, RT (1996). Impaired retrieval

Shimamura, AP, Berry, JA, Mangels, JA, Rusting, S, & Jurica, PJ (1995). Memory and
cognitive abilities in academic professors: Evidence for successful aging. Psychological


**Education**

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<th>Discipline</th>
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<td>PhD</td>
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**Other Current & Past Funding (last 5 years)**

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<td>7/08- 12/09</td>
<td>A Social Cognitive Neuroscience Approach to Math Achievement and Learning: Establishing Norms</td>
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<td>Detection and Correction of Errors in Declarative Memory</td>
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**Attachments**

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**Budgets**
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We plan to use these funds to purchase inexpensive headphones, alcohol swabs for cleaning these headphones after use, and for cardboard carrells. These materials are necessary in order to run the study in groups in college computer labs. Specifically, the instructions and auditory feedback are delivered through personal headphones in order that we can run multiple conditions of the experiment in the same room. Carrells prevent students from observing each others performance.
Research Staff
We expect to allocate $2025 of the budget to hiring an undergraduate research assistant from Baruch College in order to promote research interest among the undergraduate student body. It is expected that the research assistant will be hired at the rate of $15 per hour and will be scheduled to work 9 hours per week for a total of 15 weeks, totaling $2025 ($2224 including fees). The undergrad RA would be hired for Fall 2014, with the anticipation that human subjects testing and data analysis will be completed during this time. Given that the experimental design builds upon existing materials, and that the computer program for the experiment will be finished during the summer, we believe it to be realistic that all testing will be completed during this time. The undergrad RA could participate in further data analysis and manuscript preparation in the Spring semester as either as a research volunteer or for research credit (Psych 5030; Research Practicum).

Subject Payments
Payment for participation will occur in two parts; first we plan to test 30 subjects per condition for 4 conditions totaling 120 subjects. Adding to that an anticipated experiment-wide 20% attrition rate (based on attrition rate in similar experiments), this brings the total number of subjects to 144. We anticipate that half of the subjects needed will sign up to receive participant credits through our Introductory Psychology Subject Pool as compensation, whereas the rest will receive a cash payout of $5 for every half hour of participation for a total of 4 hours or $40. Thus, the estimated 72 cash payout subjects will receive a total of $2880. A second participant payout will incur through participation in an individual raffle upon completion of the experiment. The individual subject raffle will act as the reward system essential to our experimental design. Each subject will receive approximately 56 tickets, as a result of their performance, and will have a chance to win an additional $20, $15 or $5 prize, with a small chance to win two or all three of the prizes. In order for each subject to have an approximate 20% chance of winning a single prize, we adjusted the raffle formula to pick 3 tickets out of a total of 840 tickets a total of 56 times. We anticipate the upper probability range of the raffle payout to be around $700 for all 4 groups. This will bring the total subject payments across both the basic compensation and the raffle compensation to $3580.

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