

Reactions to Mistakes

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Background

- In this research, we will investigate the ideal and expected reactions from authority figures. Anticipating that an authority figure's reaction will be angry versus empathic may have consequences for the willingness of students to step out of their comfort zones and challenge themselves.
- The ability to recover from setbacks is critical to persistence in challenging domains (Duckworth, Peterson, Matthews, & Kelly, 2007).
- Documenting this discrepancy, and investigating whether this discrepancy varies across demographic categories or majors, will provide important information in understanding how students construe risk and recovery from setbacks in academic fields.
- Our previous work (Diekman et al., 2010) shows that people believe that STEM fields do not involve working with others or helping others. People may thus have different expectations about the consequences of making mistakes in STEM fields.

Methods

Participants

- 204 students (54 male, 146 female, 1 non reporting)
- 65 STEM majors, 139 Non-STEM majors

Procedure

- Participants completed a mass survey through a Sona website where they rated their ideal versus expected reactions to making a mistake within the classroom based on their major.
- Participants imagined that they were a student in an engineering lab and accidentally deleted all of the course data.
- Participants ranked ideal and expected actions on a Likert scale from 1-7 (1 being definitely did not want or expect) to 7 (definitely would want or expect), (E.g., "Be sympathetic of your mistake", "Believe that you cannot improve".)

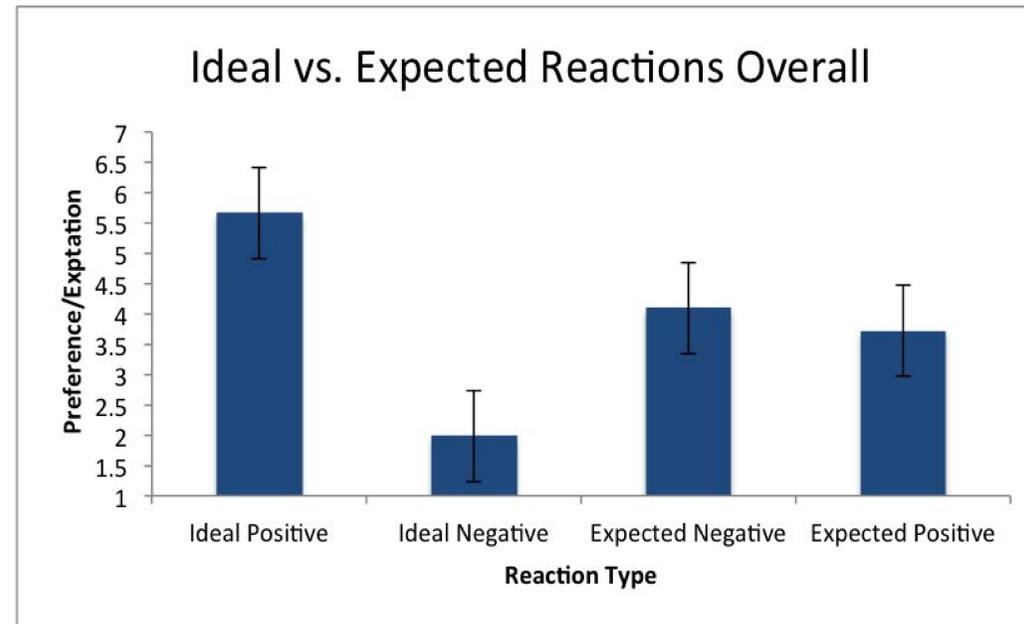
Hypothesis 1

- Overall in STEM, people would ideally like compassionate responses from professors when a mistake is made but expect more anger based reactions

Hypothesis 2

- The perceptions of participants will be moderated by major (whether or not they are actually STEM majors)

Results



Results (continued)

- Hypothesis 1: Tested with a 2 (scenario: ideal, expected) x 2(response type: compassion, anger) repeated measures ANOVA for overall effect
 - Overall, participants ideally would prefer to receive compassionate responses ($M = 5.66, SE = .77$) versus anger responses ($M = 1.98, SE = .75$) from professors when a mistake is made. They expect more anger based reactions. ($M = 4.10, SE = 1.01$) versus positive responses ($M = 3.72, SE = .94$), $F(1, 203) = 413.312, p < .001$.
- Hypothesis 2: Tested with a 2 (scenario: ideal, expected) x 2 (response type: compassion, anger) x 2(major: STEM, nonSTEM) with scenario and response type as repeated measures and major as a between subjects factor.
 - STEM majors had a stronger preference for compassionate responses ($M = 5.81, SE = .094$) than nonSTEM majors, ($M = 5.430, SE = .077$), $F(1,203) = 9.721, p = .002$. They also had a weaker preference for anger responses ($M = 1.94, SE = .092$) than nonSTEM majors, ($M = 2.19, SE = .075$), $F(1,203) = 4.309, p = .039$.
- STEM majors did not differ from nonSTEM majors in terms of expected reactions. Both groups expected more anger reactions and fewer compassionate reactions, all $ps > .05$.

Discussion

- STEM majors had an overall more positive ideal reaction expectation for professors in comparison to non-STEM majors.
- Separate analysis was done on gender and showed parallel effects to the STEM and non-STEM.
- This was a self report survey, which may serve as a limitation in regards to skewed responses to fit expectations.
- Further implications may indicate more research to be done on gender effects in regards to expectations of these two fields.
- Findings could also suggest a potentially higher understanding of realizing the detrimental effect of deleting data amongst STEM majors compared to non-STEM.

References & Further Reading

- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101.
- Murphy, M.C. & Dweck, C.S.(2010). A culture of genius: How an organization's identity theory shapes people's cognition, affect, and behavior. *Personality and Social Psychology Bulletin*. 36(3), 283-296.