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Achievement goals and improvement following failure: moderating roles of self-compassion and contingency of self-worth

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ABSTRACT

We examined whether mastery goals promote greater score improvement on a cognitive test than performance goals and whether self-compassion and contingency of self-worth moderated the effect. Participants received either mastery or performance goals manipulation, failed on a difficult test, and took the test again after receiving the correct answers. Those with mastery goals showed a greater score improvement than those with performance goals, although post-failure state self-esteem did not differ between the two conditions. Moreover, the goals had a greater effect among (a) those with low rather than high self-compassion and (b) those with high rather than low competition contingency of self-worth. The findings suggest that by framing the task as a challenge rather than a threat, mastery goals encourage people to learn from failure more so than performance goals, especially when under high ego-threat.

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Achievement goals; mastery goals; performance goals; self-compassion; contingencies of self-worth; self-esteem

Some people see failures as threats while others see them as challenges. When failure threatens self-esteem, people prioritize protecting their self-worth at the cost of learning (e.g., Baumeister, 1997). However, when people appraise difficulties as challenges, they can continue investing effort and increase their performance (e.g., Crocker, Brook, Niiya, & Villacorta, 2006; VandeWalle, Cron, & Slocum, 2001). This research examined whether people who failed on a task showed greater score improvement on a subsequent task when they were given mastery goals than performance goals and tested whether individual differences in self-compassion and competition contingency of self-worth moderated the above effect.

Achievement goals theory and improvement following failure

Researchers have typically distinguished two types of goals that influence how people approach, engage, and respond to achievement situations—performance goals and mastery

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goals. Although researchers have also distinguished the approach and avoidance dimensions to these goals (Elliot, 1999), our study focused on the approach dimensions of these goals and refers to performance-approach goals as “performance goals” and mastery-approach goals as “mastery goals” for short. Performance goals focus on demonstrating competence by doing better than others, whereas mastery goals focus on attaining task mastery (Elliot, 1999).

In a longitudinal study of undergraduates, McGregor and Elliot (2002) found that performance goals correlated with appraising the exam both as a threat and a challenge. In contrast, mastery goals did not correlate with a threat appraisal, but were more strongly correlated with the challenge appraisal, compared to performance goals. Moreover, people with mastery goals show adaptive responses to failure, such as high persistence and performance (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Wolters, 2004). They also rely more intensively on their working memory to engage in deeper learning strategies than those with performance goals (Avery & Smillie, 2013; Crouzevialle & Butera, 2013). Therefore, we predicted that mastery goals would result in greater score improvement from the first to the second test than performance goals (Hypothesis 1).

Research also suggests that mastery goals buffer self-esteem against the threat of failure (Crocker et al., 2006). Niiya and Crocker (2007) examined participants’ state self-esteem following either success or failure on a cognitive test and found that failure resulted in lower self-esteem, especially for those who based their self-worth on academic competence and had low mastery goals. Those who endorsed high mastery goals maintained their self-esteem following failure, even when their self-worth was contingent on academic competence. Therefore, we predicted that participants with mastery goals would maintain higher state self-esteem following failure than those with performance goals (Hypothesis 2).

Self-compassion and Competition Contingency of Self-worth as Moderators

We predicted that self-compassion would moderate the effect of achievement goals on score improvement, such that the difference between mastery and performance goals would be larger among those with low rather than high self-compassion (Hypothesis 3). Neff (2003) defined self-compassion as

being open to and moved by one’s own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, nonjudgmental attitude toward one’s inadequacies and failures, and recognizing that one’s own experience is part of the common human experience. (p. 224)

Self-compassion attenuates the threat of failure (Breines & Chen, 2012; Leary, Tate, Adams, Allen, & Hancock, 2007) and therefore people with high self-compassion may be able to improve following failure regardless of whether they pursue performance or mastery goals. In contrast, those with low self-compassion may find failure more threatening and consequently may have difficulty improving on a second test unless they have mastery goals to frame failure as a challenge.

We also expected that competition contingency of self-worth (i.e., the extent to which people base their self-worth on outperforming others) would moderate the effect of achievement goals on score improvement, such that the difference between mastery and performance goals would be larger among those with high rather than low competition contingency (Hypothesis 4). People suffer from threats to self-esteem, especially when they fail in the domain they rely on as a source of self-esteem (Crocker & Park, 2004). Therefore, paying attention to feedback may be more difficult, the more people invest their self-worth on outperforming others, unless they

have mastery goals to frame failure as a challenge. In contrast, for those whose self-worth is not contingent on competition, we expected that people would be able to improve from initial failure regardless of their achievement goals because of the low threat.

Method

Participants

Fifty-two Japanese undergraduates (62% female; mean age 19.26; SD = 1.53) participated in this study in exchange for 1000 yen (approximately \$8).

Procedure

First, participants provided measures of contingency of self-worth, self-compassion, and state self-esteem. Five items from the Japanese version of the contingencies of self-worth scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Uchida, 2008, for the original) measured how much self-esteem was contingent on competition ($\alpha = .74$; e.g., "I feel worthwhile when I perform better than others on a task or skill.") Self-compassion was assessed with the Japanese version of the short self-compassion scale ($\alpha = .80$; e.g., "When I fail at something important to me I become consumed by feelings of inadequacy;" Miyagawa, Niiya, Taniguchi, & Morishita, 2015; Raes, Pommier, Neff, & Van Gucht, 2011, for the original). Pretest state self-esteem was measured with the Japanese self-esteem scale (Ohbuchi, 1991; for the original, see Cheek & Buss, 1981) with the instruction to indicate how the statements were true of themselves "right now" ($\alpha = .74$; e.g., "I feel I am basically worthwhile.") All the response scales ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

Then, participants were randomly assigned to either mastery goals or performance goals manipulation, modeled after Elliot, Shell, Henry, and Maier (2005). Participants in the mastery goals condition read:

This study measures how much undergraduates *can develop their creativity* by working on such a task. After completing the task, you will receive personal feedback on how well you performed on the task. While working on the task, *please consider how you can solve this type of task effectively.*

In contrast, participants in the performance goals condition read:

This study attempts to *compare the creativity of undergraduates*. After completing the task, you will receive personal feedback on how well you performed on the task relative to other students. Previous work has shown that most undergraduates are fairly comparable in their ability but that some students do exceptionally well. While working on the task, *please try to show that you are more creative and capable than others.*

Participants then worked on the Japanese version of Remote Associates Test (RAT; Terai, Miwa, & Asami, 2013; for the original, see Mednick, 1962) for 10 min. The test contained three easy questions that more than 85% of participants in previous research (Terai et al., 2013) have answered correctly and nine difficult questions that less than 30% participants have answered correctly to ensure that all participants perform poorly on the test while giving them the impression that the test was not unrealistically difficult.

The experimenter scored the test and gave participants a feedback sheet that showed their score and a short paragraph that was addressed to "those whose score was 5 and below," which explained that "people in this score range have low creativity and are reluctant to try

new things." Then, participants also received the answers of the RAT, some explanations of the words used in the test, and some advice on how to solve the test effectively.

Next, participants completed the Japanese translation of Rosenberg's self-esteem scale (Rosenberg, 1965; Abe & Konno, 2005) to which the phrase "right now" was added to each item to capture state self-esteem (e.g., "right now I feel that I have a number of good qualities;" $\alpha = .87$). Participants then took the same RAT test again. When finished, they answered what kind of goal they had received when doing the test by choosing one of the following statements: "To think about how I can solve the test effectively," "To demonstrate I am more creative than others," or "I was not given any particular goals." Finally, all the participants received a thorough debriefing on the deception and purposes of the experiment.

Results

Preliminary Analyses

Manipulation Checks

The majority of participants (63%; $n = 32$) correctly answered the manipulation question, but 9 provided the incorrect answer and 10 answered they have received no specific goal instructions. Nevertheless, our main analyses showed that the manipulation had the expected effect on the dependent variables, suggesting that the manipulation may have influenced participants at unconscious level or that the manipulation effect may have disappeared by the time participants completed the manipulation check item.

RAT Difficulty

Participants' scores ranged from 0 to 5 of 12, with a mean of 3.84 ($SD = 1.08$), suggesting that the test was indeed difficult. Data from one participant who scored exceptionally high (8) were deleted from the analysis. Participants in the performance condition did slightly better ($M = 4.12$, $SD = .86$) than those in the mastery condition ($M = 3.56$, $SD = 1.23$) but the difference was not significant, $t(49) = -1.88$, n.s.

Gender had no main effect and did not interact with any of the dependent variables, $F_s(1, 46) < 2.22$, n.s., hence it was not included in the main analyses.

Effect of goals on score improvement and post-failure state self-esteem

Participants in both conditions scored higher on the second test than on the first test ($M = 10.52$, $SD = 1.26$ for mastery condition and $M = 9.96$, $SD = 1.78$ for performance condition; $t(49) = 1.29$, n.s.). To see whether the level of score improvement differed by condition, we ran a mixed ANOVA, with the first and second test scores as repeated measures and goals as a between factor. The score improvement from the first to the second test was significant, $F(1, 49) = 963.07$, $p < .001$, $\eta^2 = .95$. Moreover, consistent with Hypothesis 1, the score improvement was greater in the mastery goals condition than in the performance goals condition, $F(1, 49) = 7.29$, $p = .01$, $\eta^2 = .13$.

Contrary to Hypothesis 2, those in the performance goals condition had slightly higher post-test state self-esteem ($M = 4.25$, $SD = 1.18$) than those in the mastery goals condition ($M = 4.09$, $SD = .87$). An ANCOVA with post-test state self-esteem as the dependent variable and pretest state self-esteem as a covariate indicated that the main effect of goals was not significant, $F(1, 48) = .16$, n.s.

Test of moderation effect

Table 1 shows the means, standard deviations, and correlations of the variables. To test whether self-compassion and competition contingency of self-worth moderated the effect of goals on score improvement (Hypotheses 3 and 4), we ran two regression analyses separately for each moderator. The condition was dummy coded (0 = Mastery goals, 1 = Performance goals) and the moderators were all centered around the grand mean (Aiken & West, 1991). In both analyses, the first test score was entered at step one to control for the initial score. The goals and the moderator were entered at step two, and the interaction term at step three.

The analysis showed no main effect of self-compassion, $b = -.10$, $t = -.32$, n.s. but a significant main effect of goals, $b = -.84$, $t = -2.17$, $p < .05$, $R^2 = .08$, and a significant Goals \times Self-Compassion interaction, $b = .95$, $t = 2.25$, $p < .05$, $R^2 = .07$. Figure 1 shows the estimated second test scores of participants low (-1 SD below the mean) and high ($+1$ SD above the mean) on self-compassion in the mastery and performance goals conditions. Consistent with Hypothesis 3, simple slope tests revealed that for those high in self-compassion, the goals did not influence the second test score, $b = .02$, $t = .03$, n.s. In contrast, for those low in self-compassion, the second test score was lower in the performance goals condition than in the mastery goals condition, $b = -1.69$, $t = -3.16$, $p < .01$, $R^2 = .33$.

Table 1. Means, Standard Deviation, and Zero-order Correlations of the Variables in the Pre- and Post-Measures.

| | Variables | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 |
|----|-----------------------------|----------|-----------|------|------|-------|------|------|
| 1. | First test score | 3.84 | 1.08 | – | – | – | – | – |
| 2. | Second test score | 10.24 | 1.56 | .34* | – | – | – | – |
| 3. | Pretest state self-esteem | 4.61 | 1.02 | .18 | .08 | – | – | – |
| 4. | Post-test state self-esteem | 4.17 | 1.03 | .15 | .13 | .57** | – | – |
| 5. | Self-compassion | 3.90 | 0.90 | .07 | .28* | .50** | .30* | – |
| 6. | Competition contingency | 5.00 | 0.95 | -.06 | -.20 | .04 | -.16 | -.17 |

Note: Possible ranges for the variables were 1–7, except for the first and second test scores which ranged from 0 to 12.
* $p < .05$; ** $p < .01$.

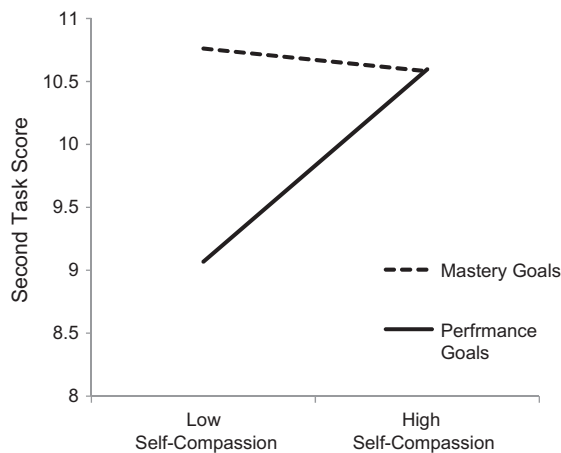


Figure 1. Estimated second test score of participants low (-1 SD) and high ($+1$ SD) on self-compassion by goals. Second test score was estimated by controlling for the first test score as a covariate.

A similar result emerged with competition contingency. There was no main effect of competition contingency on the second test score, $b = -.10$, $t = -.32$, *n.s.*, but a significant main effect of goals, $b = -.84$, $t = -2.17$, $p < .05$, $R^2 = .08$, and a significant Goals \times Contingency interaction, $b = -.88$, $t = -2.14$, $p < .05$, $R^2 = .07$ (see Figure 2). Consistent with Hypothesis 4, simple slope tests revealed that for those who were low on competition contingency, the second test scores did not differ between the two goals, $b = -.10$, $t = -.19$, *n.s.*, whereas for those high in competition contingency, the second test score was lower in the performance goals condition than in the mastery goals condition, $b = -1.76$, $t = -3.18$, $p < .01$, $R^2 = .30$.

Discussion

Mastery goals have often been associated with better learning than performance goals, as indicated by greater persistence (e.g., Niiya & Crocker, 2007; Wolters, 2004), greater working memory (e.g., Avery & Smillie, 2013; Crouzevalle & Butera, 2013), and greater interest (e.g., Harackiewicz et al., 2002). Consistent with these findings, our study showed that people who were instructed to adopt mastery goals showed greater score improvement from the first to the second test than those instructed to adopt performance goals. We can speculate that people with mastery goals perceived failure as a challenge rather than a threat and hence maintained their motivation despite failure, paid more attention to the feedback, and remembered the answers more than those with performance goals.

Surprisingly, people with mastery and performance goals did not differ in their state self-esteem following failure, which was in stark contrast to previous research (Niiya & Crocker, 2007). By the time we measured state self-esteem, people with performance goals may have already restored their self-esteem by diminishing the importance of the task or by externalizing the cause of failure (Baumeister, 1997). However, the threat of failure may have exerted influence at the unconscious level. Consistent with this idea, we found that mastery goals led to greater score improvement than performance goals, especially among those prone to greater self-threat (i.e., those low in self-compassion and those high in competition contingency).

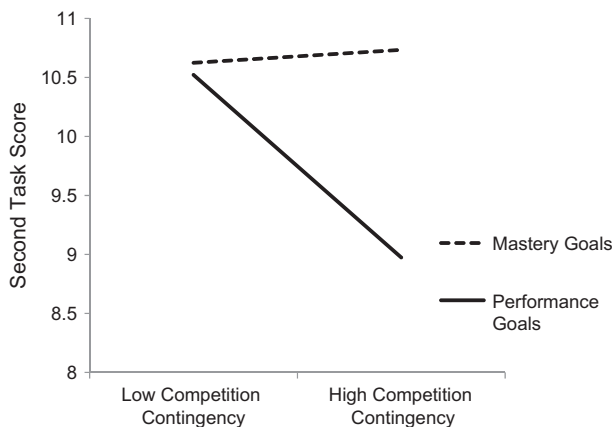


Figure 2. Estimated second test score of participants low (-1 SD) and high ($+1$ SD) on competition contingency of self-worth by goals. Second test score was estimated by controlling for the first test score as a covariate.

Our findings showed that the benefits of mastery goals over performance goals disappeared among those high in self-compassion and low in competition contingency. People high in self-compassion were able to improve regardless of their assigned goals. Although performance goals fuel anxiety and fear of failure due to outcome concerns and pressure to outperform others (Daniels et al., 2009), self-compassion may have enabled people to accept failure with warm understandings and mindfulness (Leary et al., 2007). Similarly, people who did not base their self-worth on competition were able to improve regardless of their assigned goals. When people with highly contingent self-worth pursue performance goals, they may find failure particularly threatening to their self-esteem, which may prevent them from paying attention to feedback. However, if people can adopt mastery goals or reduce their self-worth contingency, they may see failure as a challenge and may be able to improve on the second test.

Some researchers have argued that East Asians do not pursue self-esteem as much as North Americans do (Heine, Lehman, Markus, & Kitayama, 1999). However, the pattern of interaction we found with self-compassion and contingencies of self-worth suggests that the Japanese were also vulnerable to self-esteem threat and that self-compassion and self-worth contingency could be meaningful constructs in Japanese culture as well.

Limitations and Future Research

One major limitation of this study was that it lacked a control condition, so that we could not determine whether the amount of score improvement in each condition was more or less than having no goals. Although our goals manipulation was similar to those in previous studies (e.g., Elliot et al., 2005) and although it had the intended effect on our dependent variables, the manipulation check question failed to capture the effect. Moreover, the null finding regarding post-test state self-esteem precluded us from explaining why mastery goals led to greater score improvement than performance goals. Also, the small sample size could have been inadequate in detecting some of the effects.

Despite these limitations, our study provided promising support that mastery goals may be more conducive to learning from failure than performance goals. Our study also suggested that the negative effect of performance goals could be attenuated when combined with high self-compassion or low contingency of self-worth. When the environment requires one to pursue performance goals (e.g., when one is trying get a job or win a competition), it would be beneficial for the person to cultivate self-compassion or to disconnect the outcome from its implication to one's self-worth.

Disclosure statement

No potential conflict of interest was reported by the authors.

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