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Bouncing back from failure: The interactive impact of perceived controllability and stability on self-efficacy beliefs and future task performance

Pete Coffee\*

Staffordshire University, UK

Tim Rees, & S. Alexander Haslam

University of Exeter, UK

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#### AUTHOR NOTES

Pete Coffee, Centre for Sport and Exercise Research; Tim Rees, School of Sport and Health Sciences; S. Alexander Haslam, School of Psychology.

\*Correspondence concerning this paper should be addressed to Pete Coffee, Centre for Sport and Exercise Research, Staffordshire University, Leek Road, Stoke-on-Trent ST4 2DF. E-mail: p.j.coffee@staffs.ac.uk. Telephone: +44 (0)1782 294019. Fax: +44 (0)1782 294321.

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### Abstract

There is limited empirical evidence of the relationship between attributions following failure and subsequent task performance. Two studies manipulated the perceived controllability and stability of causes of initial task failure and explored the impact of these factors on perceptions of self-efficacy and follow-up performance. Consistent with previous attributional and social identity theorising, an induced belief that failure was both beyond control and unlikely to change led to lower self-efficacy and worse performance, relative to conditions in which outcomes were believed to be controllable and/or unstable. These findings point to the resilience of beliefs in personal self-efficacy, but suggest that where opportunities for self-enhancement are precluded personal self-belief will be compromised and performance will suffer.

Key words: attributions, social identity, self-enhancement, behaviour, sport psychology

## Introduction

A large body of psychological theory suggests that causal attributions following failure can play a significant role in shaping people's sense of self-efficacy and their subsequent performance (Abramson, Seligman, & Teasdale, 1978; Bandura, 1997; Weiner, 1985). However, empirical evidence that links such attributions to subsequent performance is sparse. Instead, links are generally made between attributions and indices of behaviour, such as, expectations for future success (e.g., Grove & Pargman, 1986; Orbach, Singer, & Price, 1999; for a review, see Weiner, 1986), self-efficacy (e.g., Bond, Biddle, & Ntoumanis, 2001; Coffee & Rees, 2008; Gernigon & Delloye, 2003), persistence (e.g., Le Foll, Rascle, & Higgins, 2006, 2008; Martinek & Griffith, 1994; Rascle, Le Foll, & Higgins, 2008), learned helplessness (e.g., Alloy, Peterson, Abramson, & Seligman, 1984; Deuser & Anderson, 1995; Ramirez, Maldonado, & Martos, 1992), and depression (e.g., Anderson, 1999; Johnson, Han, Douglas, Johannet, & Russell, 1998; Robins, 1988; Sweeney, Anderson, & Bailey, 1986). Indeed, despite the strong emphasis that is routinely placed upon the management of performance in applied settings, relatively little research has examined the direct impact of psychosocial variables on actual performance. To address this lacuna, the present article reports the results of two studies that examine the interactive effects of attributions for failure on self-efficacy and objective task performance.

In the present studies we focus on two key dimensions of attributions: perceived controllability and stability. Controllability refers to the degree to which the causes of outcomes are seen to be under one's direct control; stability refers to a belief that the causes of outcomes are unlikely to change. The importance of the first of these

dimensions was emphasised in early attribution theorising which noted the importance of people's perception that they have control over future events (e.g., Heider, 1958; Kelley, 1972). This insight was also central to formulations of the learned helplessness model, which observed that the most direct determinant of helplessness is an expectation of future uncontrollability (e.g., Abramson *et al.*, 1978). Further, the importance of controllability is recognised in other work (e.g., Anderson & Riger, 1991; Weiner, 1979, 1985), which has identified a relationship between people's belief in their ability to influence the causes of future events and indices of behaviour.

Weiner (e.g., 1979, 1985) hypothesised that stability alone should predict expectations for future success. Whilst support has been provided for the effect of stability attributions on future expectations (for a review, see Weiner, 1986), researchers have also reported evidence for the importance of controllability attributions (e.g., Grove & Pargman, 1986). More recently, research has examined attributions in relation to self-efficacy. In a study with 81 golfers, Bond *et al.* (2001) found that under conditions of perceived success, stability attributions predicted self-efficacy; under conditions of perceived failure, attributions did not predict self-efficacy. With 62 national level sprinters, Gernigon and Delloye (2003) reported main effects for controllability and stability attributions upon self-efficacy. Few studies have examined the effects of attributions upon actual behaviour. In sport, the examination of the effects of attributions upon subsequent performance has produced inconsistent findings. For example, Rudisill (1988), Orbach *et al.* (1999), and Le Foll *et al.* (2008) reported no effects for attribution manipulations upon subsequent performance. On the other hand, Rudisill (1989) and Orbach, Singer, and Murphey (1997) found that performance was

enhanced for participants who were orientated toward attributions that were controllable and unstable.

As indicated above, in the present paper the dimension whose interaction with controllability we are particularly interested in is stability. Our particular interest in this variable stems from its importance in the body of research informed by social identity theory (Tajfel & Turner, 1979). This theory predicts that individuals will tend to pursue personal strategies for self-enhancement providing that they have *some* basis for believing that those strategies are likely to prove successful. Although empirical evidence has demonstrated the utility of controllable *and* unstable attributions following failure (e.g., Orbach *et al.*, 1997; Rudisill, 1989), this could mean that even individuals assigned to a mixture of favourable and unfavourable attribution conditions (i.e., controllable and stable, or uncontrollable and unstable) would continue to strive for improvement on subsequent trials. On the other hand, it might only be those individuals assigned to completely unfavourable attribution conditions (i.e., uncontrollable and stable) whose self-efficacy would be undermined (Haslam, 2004) and performance compromised.

Supporting this idea, work by Wright and colleagues has shown that individuals will work hard within a given organisational system even if there is only a very small possibility of them gaining promotion (Wright, Taylor, & Moghaddam, 1990). Likewise, within a simulated prison system, Reicher and Haslam (2006) found that prisoners worked hard to gain advancement so long as the possibility of promotion existed. As in Wright and colleagues' work, it was only when promotion was ruled out and the system became completely 'closed' that participants' efforts were channelled in

other directions. Along similar lines, a study by Parker (1997) showed that individuals' task motivation (as measured by their need for achievement — nAch; McClelland, 1955) within an organisation remained high so long as they were not assigned to a low-status group and told that, however hard they work, there was no prospect that they would advance up the organisational hierarchy.

Building on the combined insights of these traditions, we predicted that, following failure on a given task, self-efficacy and future performance would remain unchanged or would improve, so long as individuals believed either that causes for failure were under their control and/or liable to change. This prediction is in line with previous social identity research which indicates that an individual's motivation for personal self-enhancement tends to prevail unless avenues to this are totally closed. It also accords with previous work which observes that people typically make attributions that are favourable to their self-concepts (Collins, 1996), and have a considerable capacity for resilience in the face of negative experiences (Suedfeld, 1997). Self-enhancement is also reliably found to influence thoughts and behaviour, protecting, maintaining, and elevating the positivity of the self (Sedikides, Gaertner, & Toguchi, 2003) and contributing to persistence in challenging tasks and resiliency in the face of adversity (see, e.g., Sedikides, Herbst, Hardin, & Dardis, 2002), as well as improved performance (see, e.g., Kurman, 2006).

In order to test this hypothesis, two studies were conducted. The first of these was a vignette study that explored participants' self-efficacy in response to imagined failure on a sporting task. The second study examined participants' self-efficacy and

actual performance across two attempts on a dart-throwing task, for which failure was induced after the first attempt.

### Experiment 1

This study was an initial exploration of the impact of the perceived controllability and stability of causes of initial task failure on perceptions of self-efficacy. In line with the above theorising, it was hypothesised that self-efficacy would vary interactively as a function of these variables, and would be most harmed by failure where that failure was thought to be uncontrollable and unlikely to change in the future.

#### *Method*

##### *Participants and Design*

Participants were a convenience sample of 368 (172 female, 196 male; mean age 19.57,  $s$  2.14 years) sport and health science undergraduates from a university in England. The study had a two-factor design, with two levels to each factor (controllability: high, low; stability: high, low). Participants were randomly assigned to conditions.

##### *Procedure*

Participants were asked to read a vignette prefaced with the following rubric: “You are an average performer in a sport of your choice. You really want to be selected for the university’s team. At the tryout, however, you fail to get selected.” They were then provided with an attribution manipulation that read, “The cause of your performance is something that you can [can’t] control, and [but] something that is unlikely [likely] to change.” Participants then completed a measure of self-efficacy related to a subsequent tryout for the university’s team.



### *Measure*

We designed a six-item measure of self-efficacy (across conditions,  $\alpha=0.90$ ) related to sport performance (e.g., Gould, Greenleaf, Chung, & Guinan, 2002; Mahoney, Gabriel, & Perkins, 1987; Orlick & Partington, 1988). As self-efficacy is an assessment of perceived capability (Bandura, 1997), items were phrased in terms of *could do* rather than *would do*, and references were made to barriers to successful performance or characteristics that generally lead to successful performance. Items were preceded by the statement, “In regard to the next tryout for the university’s team, how confident do you feel right now, that you could . . .” with response options ranging from 1 (*not at all*) to 7 (*completely*). The items were: “stay calm despite the pressure”; “stay focussed on the most important parts of your performance”; “mobilise all your resources for this performance”; “perform well, even if things get tough”; “raise the level of your performance if you have to”; and, “stay motivated throughout your performance.”

### *Results*

Scores on the self-efficacy scale were subjected to a two-way (controllability: high, low; stability: high, low) ANOVA. This revealed no significant main effect for controllability,  $F_{1,364}=3.04$ ,  $P>0.05$ ,  $\eta_p^2=0.01$ , observed power=0.41. However, there was a significant main effect for stability,  $F_{1,364}=29.52$ ,  $P<0.01$ ,  $\eta_p^2=0.08$ , and a significant interaction between controllability and stability,  $F_{1,364}=10.74$ ,  $P<0.01$ ,  $\eta_p^2=0.03$  (Figure 1). Following a simple ANOVA, Bonferroni corrected multiple comparisons tests identified significant differences in self-efficacy between participants in the uncontrollable and stable condition (mean=3.89,  $SE=0.13$ ), and participants in the controllable and stable condition (mean=4.43,  $SE=0.10$ ), the controllable and unstable

condition (mean=4.66,  $SE=0.10$ ), and the uncontrollable and unstable condition (mean=4.83,  $SE=0.10$ ).

### *Discussion*

The above results support the prediction that following failure, the perception that causes of performance are uncontrollable and unlikely to change results in significantly lower levels of self-efficacy relative to conditions in which causes are seen as controllable and/or unstable.

Yet while these results support our hypotheses, their generalisability is limited by three factors. First, our use of a student sample (albeit one with considerable sporting experience) raises questions as to whether the patterns observed here would be reproduced in larger, more heterogeneous populations. Second, results were observed in relation to a fictitious situation rather than an actual performance task. Third, the results relate only to perceived self-efficacy. As noted in the Introduction, it is therefore important to ascertain whether the effects observed here have any bearing on actual future performance. These concerns were addressed in a second study.

## Experiment 2

### *Overview*

This study incorporated four main changes from Experiment 1. First, instead of relying on a student sample, we recruited participants from the wider community. Second, we replaced the fictitious situation with an actual performance task, involving throwing darts at a target. Third, in addition to assessing self-efficacy, we included an assessment of objective performance outcome. Finally, to reduce within-group

variability (error variance), we included pre- and post-manipulation assessments of self-efficacy and performance.

### *Method*

#### *Participants and Design*

Participants were a convenience sample of 80 athletes (46 male, 34 female; mean age 20.51,  $s$  2.31 years), living in the South of England, who participated in the study one at a time. All participants had a background of sports achievement at a high level, competing in a variety of team ( $n=45$ ) and individual ( $n=35$ ) sports. Twenty-four participants reported having no previous dart-throwing experience, 49 participants reported having very little experience, and seven participants reported being somewhat experienced. The majority of participants were right-handed ( $n=68$ ). The study had the same two-factor design as Experiment 1, involving random assignment of participants to one of four independent conditions.

#### *Materials*

The equipment consisted of a modified dartboard and three Harrows V-wing 25 g steeltip darts. The dartboard was 44.80 cm in diameter (standard size) and was divided into 10 evenly spaced concentric circles, with the innermost circle denoting a value of 10 pts, and the outermost circle denoting a value of 1 pt. The centre of the dartboard was 1.73 m from the ground.

#### *Procedure*

After providing informed consent, participants entered the laboratory and were instructed that they were taking part in a study to investigate performance on four unique tasks, each of which had previously been shown to provide important insights

into different types of performance. All participants were then informed that they would be asked to complete the dart-throwing task, in which they would stand, blindfolded, 1.52 m (five feet) from the face of the dartboard, and then throw three darts. The scoring system (the sum of scores for three darts ranging from 0-30) was explained to participants and they were told that the objective of the task was to score as many points as they could. Participants were told when to commence throwing, and told that they would be informed of their total score after they had thrown the last dart.

Prior to this first task, participants completed a measure of self-efficacy (*pre-manipulation self-efficacy*). After their first performance, participants' actual score was recorded (*pre-manipulation performance*). All participants were provided with false negative feedback informing them that they had failed on the task (achieving a total score of just 6 with three darts). Failure was reinforced by inserting participants' initials next to a score of 6 on a false results sheet that indicated boundaries for different performance standards (where the labels 'failure', 'average' and 'good' were adjacent to scores in the ranges 0-10, 11-20 and 21-30, respectively). The sheet also contained 41 false results ranging from 13 to 24 with a mean of 17.41 ( $s=2.79$ ). To check that participants perceived their first performance as a failure, they were asked "To what extent was this performance successful for you?" with responses ranging from 1 (*not at all*) to 7 (*extremely*) (responses ranged from 1 to 3 with a mean of 1.76,  $s=.82$ ).

After this, the experimenter provided participants with the same general information: "Remember, the whole study consists of four tasks. Each task is a classic task based upon different causes for performance. That is, the cause of performance may be controllable or uncontrollable, and may or may not be likely to change." Participants

were then provided with oral instructions relevant to the condition to which they had been randomly assigned. These stated that “The dart-throwing task is the classic high [low] controllability, high [low] stability task. This means that the cause of your performance on this task is something that you can [can’t] control, and [but] something that is unlikely [likely] to change.”

Following the attribution manipulation, all participants completed measures of self-efficacy for their second performance (*post-manipulation self-efficacy*). The second performance followed the same procedure as the first performance. Following this, participants were provided with their actual score (*post-manipulation performance*). Finally, after debriefing, participants completed a post-experimental check in which they were asked to circle the condition, from a list of the four experimental conditions, to which they had been allocated. At this point all participants correctly identified the experimental condition to which they had been assigned.

### *Measures*

*Self-efficacy.* Self-efficacy was measured using a darts-specific questionnaire developed for this study. Development followed Bandura’s (e.g., 1997) recommendations and involved giving participants a list of 10 bands of scores they could potentially attain for dart-throwing performance. Each band of scores included three scores. For example, Band 1 included scores 1 to 3, Band 2 included scores 4 to 6, and Band 10 included scores 28 to 30. For each band of scores, participants were required to indicate whether they considered that they could attain a score in the band (yes/no response), and for every affirmative response, they were asked to give percentage estimate of their certainty of attaining a score in the band. Scores for self-

efficacy were calculated by summing the total certainty scores and dividing by the total number of levels (10).

*Performance.* Performance was measured as the sum of scores for the three dart throws.

## *Results*

### *Preliminary Analyses*

Analysis of variance (ANOVA) revealed that there were no significant differences in pre-manipulation scores of self-efficacy and performance due to gender (**male, female**; both  $F_{S1,78} < 2.04$ ,  $P_s > 0.05$ ), previous dart throwing experience (**no experience, somewhat experienced, very little experience**; both  $F_{S2,77} < 0.45$ ,  $P_s > 0.05$ ), and dominant throwing hand (**left, right**; both  $F_{S1,78} < 0.44$ ,  $P_s > 0.05$ ). Accordingly, these variables were dropped from subsequent analyses. Mean scores for self-efficacy and performance are provided in Table 1.

### *Main Analyses*

*Self-Efficacy.* A one-way ANOVA revealed that there were no significant differences between groups in their pre-manipulation self-efficacy,  $F_{3,76} = 0.90$ ,  $P > 0.05$ . Assumptions for ANCOVA were satisfied, including evidence for homogeneous regression slopes (i.e., the slope of the regression line was the same for each condition). The results of a two-way (controllable/uncontrollable, stable/unstable) ANCOVA revealed that, after controlling for the effect of pre-manipulation self-efficacy ( $F_{1,75} = 91.11$ ,  $P < 0.01$ ,  $\eta_p^2 = 0.55$ ), there were significant main effects for controllability,  $F_{1,75} = 7.69$ ,  $P < 0.01$ ,  $\eta_p^2 = 0.09$ , and stability,  $F_{1,75} = 6.16$ ,  $P < 0.05$ ,  $\eta_p^2 = 0.08$ , on post-manipulation self-efficacy. However, both effects were conditioned by an interaction

between controllability and stability,  $F_{1,75}=5.06$ ,  $P<0.05$ ,  $\eta_p^2=0.06$ . This interaction is presented in Figure 2a. Following a simple ANCOVA, Bonferroni corrected multiple comparisons tests identified significant differences in self-efficacy between participants in the uncontrollable and stable condition (adjusted mean=22.34,  $SE=2.07$ ), and participants in the controllable and stable condition (adjusted mean=32.66,  $SE=2.05$ ), the controllable and unstable condition (adjusted mean=33.19,  $SE=2.06$ ), and the uncontrollable and unstable condition (adjusted mean=32.11,  $SE=2.05$ ). Bonferroni corrected dependent  $t$ -tests indicated that the self-efficacy of participants in the controllable and stable condition was maintained across the two trials, but that the scores of participants in the other three conditions significantly decreased from pre- to post-manipulation assessments ( $Ps<0.0125$ ).

*Performance.* A one-way ANOVA revealed that there were no significant differences between groups in their pre-manipulation performance,  $F_{3,76}=0.54$ ,  $P>0.05$ . Assumptions for ANCOVA were satisfied, including evidence for homogeneous regression slopes. The results of a two-way (controllable/uncontrollable, stable/unstable) ANCOVA revealed that, after controlling for the effect of pre-manipulation performance ( $F_{1,75}=26.33$ ,  $P<0.01$ ,  $\eta_p^2=0.26$ ), there were significant main effects for controllability,  $F_{1,75}=7.07$ ,  $P<0.05$ ,  $\eta_p^2=0.09$ , and stability,  $F_{1,75}=7.05$ ,  $P<0.05$ ,  $\eta_p^2=0.09$ , on post-manipulation performance. Again, though, as shown in Figure 2b, these effects were qualified by a significant interaction between controllability and stability,  $F_{1,75}=5.16$ ,  $P<0.05$ ,  $\eta_p^2=0.06$ . Following a simple ANCOVA, Bonferroni corrected multiple comparisons tests identified significant differences in performance between participants in the uncontrollable and stable condition (adjusted mean=3.76,  $SE=1.33$ ),

and participants in the controllable and stable condition (adjusted mean=10.32,  $SE=1.33$ ), the controllable and unstable condition (adjusted mean=10.83,  $SE=1.33$ ), and the uncontrollable and unstable condition (adjusted mean=10.29,  $SE=1.32$ ). Bonferroni corrected dependent  $t$ -tests indicated that the performance of participants in the uncontrollable and stable condition decreased significantly across the two trials,  $t_{19}=4.23$ ,  $P<0.01$ ,  $d=0.93$ , but that the scores of participants in the other three conditions did not change ( $P_s>0.10$ ).

### *Discussion*

The results of this study closely mirror those of Experiment 1, but extend them in several important ways. As in the first study, we found that, following failure, individuals experienced lower perceived self-efficacy relative to other conditions if they believed that the causes of failure were uncontrollable and stable. Significantly, though, this pattern was observed not only on ratings of self-efficacy, but also on actual subsequent performance. Furthermore, across the two trials, performance only declined for those participants who were led to believe that causes of failure were both outside their control and unlikely to change.

### General Discussion

The two studies reported in this paper converge in demonstrating that, following failure, attributions to uncontrollable and stable causes interact to produce significantly lower levels of self-efficacy and performance relative to conditions where attributions are made to causes that are controllable and/or unstable. Moreover, the results of Experiment 2 demonstrate that, across successive trials, performance itself only declines when participants attribute failure to uncontrollable and stable causes. On the second



trial, this meant that the performance of individuals who made uncontrollable and stable attributions was less than half as good as that of participants in the other three conditions.

Attributional retraining (Försterling, 1988) encourages individuals to make attributions to controllable and unstable causes (e.g., effort and/or strategy) following failure (see, e.g., Orbach *et al.*, 1997; Rudisill, 1989). The results of the present studies, however, suggest that this combination of attributions may not be uniquely advantageous. Indeed, individuals in the controllable and unstable condition in fact displayed levels of self-efficacy and performance that were no different to those of participants in either the controllable and stable or uncontrollable and unstable conditions. This accords with the prediction from social identity theory (Tajfel & Turner, 1979) that individuals will pursue strategies of personal self-enhancement so long as they have some basis for believing that those strategies are likely to prove successful. In other words, one possible explanation for the results in the present studies is that individuals' motivation for personal self-enhancement tended to prevail unless avenues to this were completely closed (Reicher & Haslam, 2006; Wright *et al.*, 1990). Interpreted in this way, these data could provide evidence to support the assertion that people are motivated to engage in personal self-enhancement (Sedikides, 1993; Tajfel & Turner, 1979), and that this is associated with persistence in challenging tasks and resiliency in the face of adversity (see, e.g., Sedikides *et al.*, 2002), as well as improved performance (see, e.g., Kurman, 2006). As social identity theorists have argued, it appears that personal self-efficacy and performance are only thwarted when all barriers to personal self-enhancement are explicitly precluded; in such situations—where no

opportunities for personal advancement exist—individuals may rechannel their energies in different directions (e.g., through avoidance, denial or resistance; Haslam & Reicher, 2006).

The results of the vignette experiment provide general support across average performers in a variety of sports for the detrimental effects of attributing failures to uncontrollable and stable causes. While the results are convincing, implications of the results are limited by the use of a student sample, a fictitious situation, and demonstration of effects upon self-efficacy alone. These concerns were addressed in the second experiment, the results of which demonstrate that following an initial failure at a task the receipt of uncontrollable and stable attributional feedback negatively affects subsequent self-efficacy and performance. In Experiment 2, participants engaged in a novel task in which they had no previous experience. One might contend that in comparison with experts, novices, who lack prior knowledge about why events occur (see, e.g., Anderson, Krull, & Weiner, 1996), may be more influenced by a single attributional feedback statement. Future research is necessary to examine whether the results of Experiment 2 generalise to more experienced individuals engaging in ongoing activities in naturalistic settings.

Further avenues exist for future research. Having demonstrated the deleterious effects of uncontrollable and stable attributions following failure, future research might examine the effects of attributional retraining following uncontrollable and stable attributions for initial failure. That is, once in the situation of perceiving no hope—this failure is outside of my control and unlikely to change—what combination of attributions lead to improved self-efficacy and performance? Future research might also

examine the mechanisms underpinning the results of the present studies. Drawing upon social identity theory (Tajfel & Turner, 1979), one might postulate that attributional feedback has an impact upon an individual to the extent that it is provided by a source who is seen to be qualified to inform the individual about social reality. In other words, the extent to which attributional feedback affects an athlete's self-efficacy and performance might be determined by the perceived group status (ingroup or outgroup) of the person providing the feedback.

The present studies offer valuable information to trainers, coaches, or teachers in sport or physical activity contexts who influence causal attributions of athletes. Collectively, the results of the present studies suggest that following failure, practitioners should encourage athletes to perceive that the causes of failure are controllable and/or unstable. As studies of the phenomenon of stereotype threat have observed (after Steele & Aronson, 1995), the present data also underscore the point that self-efficacy and performance are not a product of ability and beliefs 'in the raw', but rather are shaped by the constraining nature of task conditions, and the opportunities for personal self-enhancement these appear to afford. In this, they take us away from the view that self-efficacy, motivation, and ability are stable individual differences, and suggest instead that these are—at least in part—a product of the social exigencies which serve to structure both cognition and action. In short, whether (and what) we learn from mistakes and failure, depends on whether or not we are encouraged to believe that there is something to learn.

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Table 1

*Mean Pre-Manipulation and Mean and Adjusted Mean Post-Manipulation Scores for Self-Efficacy and Performance in Experiment 2.*

Dependent Variable	Condition	Pre-Manipulation		Post-Manipulation			
		Mean	SE	Obtained		Adjusted	
				Mean	SE	Mean	SE
<i>Self-Efficacy</i>	CS	39.38	4.82	32.70	4.10	32.66	2.05
	CU	36.90	2.47	31.58	2.57	33.19	2.06
	US	43.81	3.24	25.33	2.71	22.34	2.07
	UU	37.20	2.38	30.70	2.43	32.11	2.05
<i>Performance</i>	CS	8.45	1.49	10.05	1.70	10.32	1.33
	CU	7.80	1.29	10.20	1.55	10.83	1.33
	US	10.15	1.41	4.45	1.32	3.76	1.33
	UU	9.30	1.35	10.50	1.51	10.29	1.32

*Note.*  $N = 80$  ( $n = 20$ /condition). CS = controllable and stable condition. CU = controllable and unstable condition. US = uncontrollable and stable condition. UU = uncontrollable and unstable condition.

### Figure Captions

*Figure 1.* The effects of controllability and stability on perceived self-efficacy. Error bars indicate standard errors.

*Figure 2.* The effects of controllability and stability on (a) perceived self-efficacy and (b) task performance (with pre-manipulation scores entered as covariates; adjusted mean scores plotted). Error bars indicate standard errors.

Figure 1

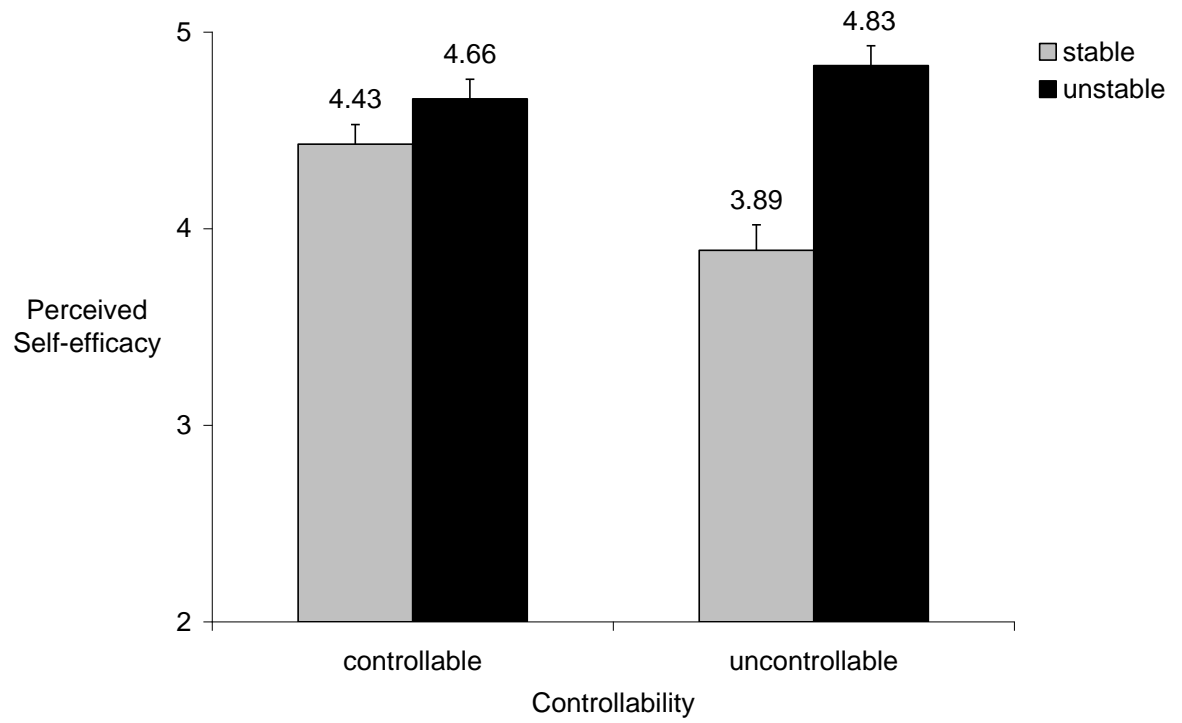
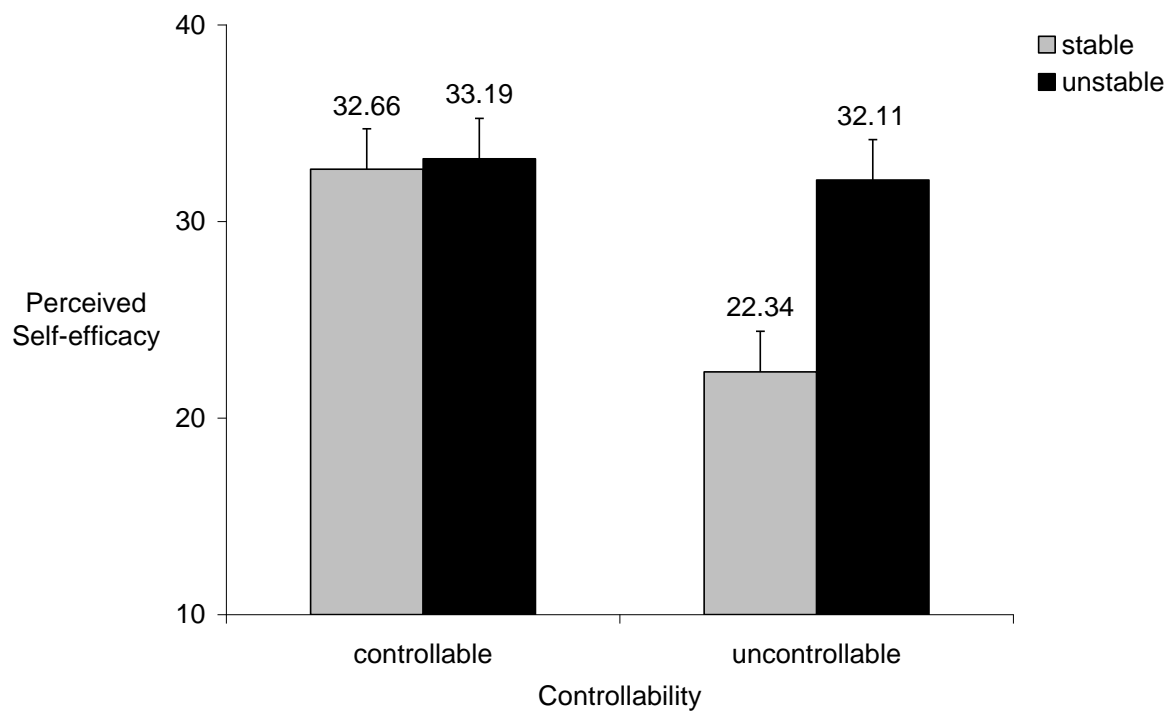


Figure 2

a



b

