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The influence of mastery-avoidance goals on performance improvement

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Abstract

Two experiments focused on examining the influence of mastery-avoidance goals on performance improvement, and more specifically, on mastery-avoidance goals grounded in an intrapersonal standard. That is, herein, mastery-avoidance goals entail striving to avoid doing worse than one has done before. Both experiments demonstrated that in a multiple-trial context, mastery-avoidance goals are deleterious for performance improvement relative to mastery-approach, performance-approach, and performance-avoidance goals, and a no goal baseline. The findings were shown to be independent of participants' perceptions of goal difficulty, and were consistent not only across methodology but also across type of participant (undergraduates versus individuals in the workforce), and type and length of achievement task (a verbal skills task versus an ecologically valid managerial competencies exercise). Copyright © 2009 John Wiley & Sons, Ltd.

The achievement goal approach to achievement motivation has emerged as a highly influential framework for understanding how people define, experience, and respond to competence-relevant situations, including the workplace, the classroom, and the ballfield. Initially, achievement goals were conceptualized in terms of a mastery-performance distinction: *mastery goals* focus on task-based and *intra*personal standards of competence, and *performance goals* focus on *inter*personal standards of competence (Dweck, 1986; Nicholls, 1984). More recently, this dichotomous model has been extended to include the approach-avoidance distinction that has long been a hallmark of achievement motivation research (Atkinson, 1957; Lewin, Dembo, Festinger, & Sears, 1944): *Approach goals* focus on acquiring positive possibilities, whereas *avoidance goals* focus on avoiding negative possibilities. First, a trichotomous achievement goal model was proposed (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; VandeWalle, 1997) in which the performance goal construct is partitioned into separate approach and avoidance goals, and the mastery goal is treated as an approach goal. Then, a more elaborate 2×2 achievement goal model was posited (Elliot, 1999; Elliot & McGregor, 2001) in which the mastery goal construct, as well as the performance goal construct, is bifurcated in terms of approach and avoidance.

A great deal of research has been conducted on the trichotomous achievement goal model (for reviews, see Elliot, 2005; Payne, Youngcourt, & Beaubien, 2007); empirical work on the 2×2 model has been far less prevalent leading some to question the need to attend to the mastery-avoidance goal construct (Deshon & Gillespie, 2005). Recent studies, however, have demonstrated that the percentage of individuals who indicate that mastery-avoidance goals are the most important to them, ranges from 15% in a sport setting (Van Yperen & Renkema, 2008), to 33% in an academic setting (Van Yperen, 2006), and to 49% in a work setting (Anseel, Van Yperen, & Janssen, 2008). Thus, mastery-avoidance goals appear to be quite prevalent in achievement contexts, more so than initially anticipated (Elliot & McGregor, 2001). The present experimental research is comprised of two experiments designed to examine the influence of the goals of the 2×2 model on performance improvement on two sequential tasks. The goal that is unique to the 2×2 model—the mastery-avoidance goal, and more specifically, *the goal to avoid doing worse than one has done before*—is the central focus of this research.

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Conceptualization of Achievement Goals

There is surprisingly little consensus in the achievement goal literature on whether ''goal'' in ''achievement goal'' is best represented as aim (Elliot, 2005; Van Yperen, 2006), a combination of reason and aim (Pintrich, 2000; VandeWalle, 1997), or overarching orientation (Ames & Archer, 1988). Our perspective is that the term ''goal'' is best conceptualized as aim or standard, because this use is consistent with its prototypical use in the psychological literature (e.g., Locke & Latham, 2002). In any given achievement context, aim is typically undergirded by a more general reason (e.g. to demonstrate competence to others, to avoid the shame of failure, to get the reward my boss promised me), and clearly both aim and reason are important in accounting for achievement behavior. However, to promote conceptual and interpretational clarity, we think it is optimal to keep aims conceptually separate from the many different reasons, dispositions, tendencies, processes, and outcomes to which aims are associated, and to empirically examine the links between the antecedents of aims and their affective, cognitive, and behavioral consequences (rather than define goals as an overarching orientation that includes several of these concepts).

Another conceptual unclarity in the achievement goal literature is that mastery-based goals have typically been portrayed as based on both absolute standards (focused on task mastery) and *intra*personal standards (focused on improvement). In the present research, we focus on mastery-based goals that contain an *intra*personal standard. Their match to a context in which similar achievement tasks are presented sequentially may afford an ideal opportunity to examine the predictive utility of mastery-based goals for performance improvement (see next paragraph). Furthermore, we focus on mastery goals grounded in an *intra*personal standard to ensure a balance in the conceptualization of achievement goals (i.e. performance goals are grounded in an *inter*personal standard). That is, herein, in the present research, mastery-approach goals entail striving to do better than one has done before, whereas mastery-avoidance goals entail striving to avoid doing worse than one has done before (Van Yperen, 2003, 2006). These forms of regulation represent mastery goals, because they focus on intrapersonal development; they represent approach and avoidance goals, respectively, because they focus on a potential positive versus negative outcome. Performance-approach goals and performance-avoidance goals also focus on a potential positive versus negative outcome, respectively. These goals represent performance goals because they focus on *inter*personal standards of competence. These conceptualizations of the achievement goals have been shown to be linked to clear, distinct profiles that were largely in line with the extant achievement goal literature (Van Yperen, 2006).

The Context of Evaluation

Most research in the achievement goal literature employing either the trichotomous achievement goal model or the 2×2 achievement goal model, has examined the links between goals and outcome variables in contexts that most closely match the focus of performance-based goals. That is, in most of these studies, competence evaluation is a onetime event *or* a *inter*personal standard of evaluation is either explicitly emphasized or implicitly assumed. Perhaps it should not be surprising, therefore, that performance-approach goals have repeatedly been found to be positively related to performance, whereas performance-avoidance goals have displayed a robust negative link with performance (Elliot & Moller, 2003; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Porath & Bateman, 2006; Van Yperen, 2006).

In contexts that seem best suited for performance-based goals, some have found positive relationships between mastery-approach goals and performance (e.g. Bell & Kozlowski, 2002; Fisher & Ford, 1998; Janssen & Van Yperen, 2004; Schmidt & Ford, 2003; Seijts, Latham, Tasa, & Latham, 2004; VandeWalle, Brown, Cron, & Slocum, 1999), but others have found null effects (e.g. Davis, Mero, & Goodman, 2007; Lee, Sheldon, & Turban, 2003; Phillips & Gully, 1997; for reviews, see Elliot, 2005; Harackiewicz et al., 2002), and there are even studies that suggest that too much of an emphasis on mastery can compromise performance attainment (e.g. Brown, 2001; Bunderson & Sutcliffe, 2003).

The little correlational research on the link between mastery-avoidance goals and performance that has been conducted to date, has yielded null results (Cury, Elliot, Da Fonseca, & Moller, 2006; Elliot & McGregor, 2001; Finney, Pieper, & Barron, 2004; Malka & Covington, 2005; Van Yperen, 2006). Only one study has been conducted that included an experimental manipulation of mastery-avoidance goals. In this study, Van Yperen (2003) observed that the positive correlation typically found between intrinsic interest and performance vanished for individuals who encountered a mastery-avoidance goal manipulation.

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The Present Research

One context in which the influence of mastery-based goals on performance might be strong is when two or more similar tasks are presented in sequence, thereby making performance improvement (or decline) the salient focus. Hence, we conducted two experiments designed to examine mastery-avoidance goals, as well as the other three goals of the 2×2 achievement goal model, as predictors of performance improvement on two similar tasks presented in sequence. Experiment 1 manipulated achievement goals and investigated the effect of these goals on performance improvement on a verbal skills task. Experiment 2 likewise assigned goals to employees and investigated the effect of these goals on performance improvement on a managerial competencies exercise. Both experiments included a no goal control condition to anchor the goal effects.

When similar tasks are presented in sequence, individuals typically learn from one trial to the next and, accordingly, display performance improvement. Mastery-avoidance goals, however, may interfere with this modal learning effect. *The goal to avoid doing worse than one has done before* uses a negative outcome as the hub of regulation, and the individual is repeatedly reminded of this negative possibility during goal pursuit. On one hand, the fact that the negative outcome at the center of mastery-avoidance goals is an internal, intrapsychic standard (as opposed to an external, interpersonal standard, as with performance-based goals) may minimize the inimical effect of this avoidance regulation. On the other hand, an *intra*personal standard is both clear and appropriate, particularly in an evaluative, multiple-trial context. As such, a negative *intra*personal standard in such a context is highly diagnostic, that is, both the dimensions of comparison (the task itself, the conditions, etc.) and the comparison other (the self) are specific, clear, and unambiguous. Accordingly, performing worse than one did before on the same task under identical conditions can yield unequivocal negative feedback which makes it hard to distort the undesired outcome in a self-enhancing manner and to find appropriate excuses for one's poor performance (e.g. Allison, Messick, & Goethals, 1989; Van Yperen, 1992).[1] For example, in a recent study, Sideridis (2008) showed that relative to mastery-approach, performance-approach, and performance-avoidance goals, mastery-avoidance goals had deleterious effects on students' regulation of their emotions across two stressful events, an upcoming examination and students' in-class presentations. That is, particularly mastery-avoidance goals were associated with enhanced negative affect and increases in cognitive and somatic anxiety (as indicated by both self-report and physiological measures).

Relative to mastery-avoidance goals, mastery-approach goals would seem optimal forms of regulation in a context highlighting *intra*personal standards of competence (e.g. Colquitt & Simmering, 1998; Ford, Smith, Weissbein, Gully, & Salas, 1998; VandeWalle, Cron, & Slocum, 2001). In this context, these goals afford a clear, positive, intrapsychic comparison process that should facilitate task absorption and enhance performance. As indicated above, performance-approach and performance-avoidance goals usually facilitate and debilitate performance, respectively, but these patterns may be mitigated in a context highlighting *intra*personal standards. Furthermore, as pointed out by Senko and Harackiewicz (2005), goal difficulty, in addition to achievement goals per se, may be responsible for different effects of performance-based goals and mastery-based goals. To attend to this issue, we operationalized performance-based goals in a way that would make their perceived difficulty comparable to that of mastery-based goals (see Method Sections).

All considered, in an evaluative, multiple-trial context in which a negative *intra*personal standard is highly diagnostic, mastery-avoidance goals were predicted to exhibit a more negative influence on performance improvement relative to mastery-approach, performance-approach, and performance-avoidance goals when controlling for goal difficulty.

EXPERIMENT 1

In this experiment, we examined the effect of the four goals of the 2×2 achievement goal model, relative to each other and a no goal control, on performance improvement on two sequential tasks. Furthermore, we tested whether goal difficulty could explain any observed goal effects. A verbal skills test was used as the focal achievement task.

[1]In contrast, an *inter*personal standard can be vague and of questionable appropriateness (Taylor & Brown, 1988). That is, in the case of other-referenced comparisons, numerous (hypothetical) factors associated with the referent-other(s) may be used as an excuse for one's inferior performance.

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Method

Participants

One hundred and fifteen (48% female) undergraduates were recruited during first-year lecture classes, and were given 6 € for participating in the experiment. Thirty-nine participants were students from professional schools and institutes in the Netherlands, divided across several disciplines: economics, education, health, and technology. The remaining 76 participants were students from a university in the Netherlands, also divided across several disciplines: art, economics, law, management, medicine, social science, and spatial science. The mean age of participants was 20.4 years old (range: 18–25).

Procedure

Participants arrived at the lab, and they were seated at a computer that guided them through the experiment. Participants read that they were going to participate in a study on verbal skills measurement, and that the experimenters were interested in how users feel about the test. They were informed that there were two similar versions of the test (henceforth *Version 1* and *Version 2*), and that they would receive feedback at the end of the session. The test was then described to participants.

Two parallel versions of Van Dijk and Tellegen's (1994; see also Van Yperen, 2003; Van Yperen & Renkema, 2008) Verbal Skills Test were used, each of which consists of three modules: Synonyms, Analogies, and Categories. In the Synonyms module, a word is provided (sample: provisions), along with five response options (options: advertisement, clairvoyance, furniture, garbage, stock). The task is to select the option that means the same thing as the target word (answer: stock). In the Analogies module, a word pair is provided, along with the first word of a second pair (sample: wolf–sheep, cat–?). Five response options are also provided (options: hedgehog, kitten, mouse, tiger, dog), and the task is to select the option that best completes the pairing (answer: mouse). In the Categories module, a pair of words is provided (sample: airplane-traveling), and the task is to identify how the two words are related to each other from a list of six response options: identical, opposite, kind, part, cause, or means (answer: means). Each module of Version 1 was introduced using three sample items. A 40 second time limit was set for each module; participants started a module by pressing the ''enter'' key, and time was displayed at the bottom of the screen.

After completing Version 1 of the test, participants were reminded that they would be completing Version 2, which was of the same difficulty level as Version 1. Version 2 was presented without further instruction. In the experimental conditions, participants read: ''Research shows that people do best on these kind of tests when they hold a specific goal. Therefore, we recommend that you adopt a specific goal when completing Version 2.'' On the next computer screen, one of the four goals of the 2×2 achievement goal model was then presented: ''*Not* to do *worse* than your total score in Version 1'' (mastery-avoidance), ''To do *better* than your total score in Version 1'' (mastery-approach), ''To do *better* than the average total score in your norm group'' (performance-approach), or ''*Not* to do *worse* than the average total score in your norm group'' (performance-avoidance). In the performance-based goal conditions, ''norm group'' was defined as ''same-sex others of about the same age and with the same level of education.''

In each goal condition, participants were informed that they would be told their ongoing scores after each module of Version 2 of the test, and that they would reach their assigned goal if they got a total score of 22 or more answers correct.[2] Precise feedback was *not* provided at the end of Version 1 of the test, because such feedback would need to be either task- or other-referenced and, therefore, may interfere with the achievement goal manipulations. For example, providing task-referenced feedback may prompt participants in the performance goal conditions to pursue a mastery goal, and providing other-referenced feedback may prompt participants in the mastery goal conditions to pursue a performance goal. Providing a target score for Version 2 that is constant across goal conditions evades this potential problem. An additional favorable feature of the current design is that only the framing of the target score differed across conditions. For performance goals, the target score was other-referenced, whereas for mastery goals, the target score was self-referenced. For approach goals, the purpose was to achieve a positive outcome, and for avoidance goals the purpose was to avoid a negative outcome.

[2]The score of 22 was the median in previous studies (e.g., Van Yperen, 2003; Van Yperen & Renkema, 2008).

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Following the goal manipulations, participants were asked to type their goal information on the next screen. Then they proceeded to complete Version 2 of the test. After completing Version 2, participants completed a measure of perceived goal difficulty. Participants were also provided with their actual score on each version of the test, and were thoroughly debriefed before being dismissed.

Measures

Manipulation Check To check the goal manipulation, participants were asked: ''Before you started with Version 2 of the Verbal Skills Test, a specific goal was recommended for you to pursue during Version 2. Which specific goal was recommended?'' Next, participants indicated the achievement goal that they believed was recommended to them, or the option ''no specific goal was recommended''; 89.1% of participants correctly recalled the achievement goal that was recommended to them.[3]

Performance Improvement Each module of the original version of Van Dijk and Tellegen's (1994) verbal skills test consists of 24–30 items of increasing difficulty. To create two equally difficult versions of the test, the odd numbers from each module were designated Version 1, and the even numbers of each module were designated Version 2 (cf., Van Yperen, 2003). The sum of participants' scores across the three modules for each version was used as an indicator of performance, and the total score for Version 2 relative to Version 1 represents the degree of performance improvement.

Perceived goal difficulty was assessed by asking participants to indicate the extent to which they found the achievement goal that they adopted to be (1) *very difficult* to (5) *very easy.*

Results and Discussion

A 2 (Definition: performance versus mastery) × 2 (Valence: approach versus avoidance) × 2 (Time: 1 and 2) mixed model Analysis of Variance (ANOVA) with definition and valence as between-subjects factors and time as a within-subjects factor was used to analyze the data. Follow-up analyses (Least Significant Difference (LSD) tests) with the change scores (see Table 1) were also conducted, both to compare the specific achievement goal conditions to each other, and to anchor the goal conditions to the no goal control condition. Preliminary analyses examined the main and interactive effects of sex. No significant results were obtained in these analyses ($ps > .17$), so sex was omitted from further consideration.

The analysis revealed a strong improvement effect, $F(1, 88) = 34.55$, $p < .001$; overall, participants' performance increased, from $M = 19.78$ (SD = 4.59) at Time 1 to $M = 22.12$ (SD = 4.72) at Time 2. The Definition × Time interaction, $F(1, 88) = .04$, $p = .85$ was not significant, but the Valence × Time interaction did attain significance, $F(1, 88) = 4.43$, $p < .05$. This interaction was qualified by a significant Definition × Valence × Time interaction, $F(1, 88) = 6.19$, $p < .05$.

Table 1. Means and standard deviations Experiment 1 ($n = 115$)

	Performance Version 1		Performance Version 2		Performance improvement	
	M	SD	*M*	SD	*M*	SD
Mastery-avoidance $n = 23$)	19.35	4.61	19.78[a]	4.18	.43[a]	3.23
Performance-avoidance $n = 23$)	20.57	5.09	23.13[b]	3.93	2.56[b]	3.80
Mastery-approach $n = 23$)	19.09	4.44	23.17[b]	3.95	4.08[b]	4.19
Performance-approach $n = 23$)	20.13	4.32	22.39[b]	5.95	2.26[ab]	3.97
Control $n = 23$)	19.50	4.48	22.07[ab]	4.53	2.57[b]	3.51

Note: In each column, means that differ significantly ($p < .05$) have different letters.

[3]Excluding the participants who did not answer the manipulation check correctly did not change the pattern of the results.

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Follow-up analyses (see Table 1) revealed that mastery-avoidance goal participants improved less than did performance-avoidance goal ($p < .05$, $d = .60$), mastery-approach goal ($p < .05$, $d = .98$), performance-approach goal ($p < .10$, $d = .50$), and no goal control ($p < .05$, $d = .63$) participants. No differences were observed among participants in the performance-avoidance, mastery-approach, performance-approach, and no goal control conditions (all $ps > .17$).

A 2 (Definition) $\times$ 2 (Valence) ANOVA was conducted with perceived goal difficulty as the dependent variable to determine whether the obtained results could be attributed to differences in perceived goal difficulty. This analysis yielded neither main effects, nor an interaction ($ps > .37$). Furthermore, rerunning the aforementioned $2 \times 2 \times 2$ mixed model ANOVA as an ANCOVA controlling for perceived goal difficulty did not alter the observed interaction, $F(1, 87) = 8.03$, $p < .001$. Likewise, the pattern of results from the follow-up analyses remained virtually the same when controlling for perceived goal difficulty.

In sum, in a multiple-trial context, mastery-avoidance goals were shown to undermine performance improvement relative to performance-avoidance, mastery-approach, and performance-approach goals, and a no goal control condition. Performance-avoidance, mastery-approach, and performance-approach goals led to similar amounts of performance improvement, relative to each other and to a no goal control. These effects were shown to be independent of perceived goal difficulty.

EXPERIMENT 2

In Experiment 2, we sought to determine whether the Experiment 1 findings on performance improvement would replicate outside the laboratory, beyond the undergraduate population, and with a different achievement task. Thus, the experiment was conducted on the web, with a diverse population of individuals looking for employment-related assistance, with a novel methodology, and using a widely used managerial competencies task with high ecological validity. As in Experiment 1, we manipulated the four goals of the 2×2 achievement goal framework, and included a no goal control condition. We examined the effect of the four goals, relative to each other and a no goal control, on performance improvement on two sequential tasks. Also in Experiment 2, we tested whether any observed differences might be explained in terms of goal difficulty.

To ensure that the results of Experiment 1 were not dependent on the presence of a target score for participants, we provided no target score in Experiment 2. That is, in contrast to participants in the other conditions, the mastery-avoidance goal participants in Experiment 1 may have felt that they did not need to work on improving, because they had already attained the target score of 22. Given that participants were not given explicit feedback after Version 1 of the task, it is possible that the mastery-avoidance goal participants interpreted the goal in Version 2 as their actual score from Version 1, and thus did not seek to improve. Another reason why we eliminated this specific criterion in Experiment 2 was that the target score may have become more salient than the assigned achievement goals. That is, in each condition, the participants may have been more committed to achieving the score of 22 than to their assigned achievement goal.

Method

Participants

Four hundred and forty-seven individuals participated in the experiment (47% female).[4] They had a mean of 14.87 years of working experience in their company (SD = 10.2), and a mean of 5.9 years of experience (SD = 6.6) in their current position. Sixty per cent held a bachelor's degree and 33% held an advanced or professional degree. The mean age of participants was 36.9 (range: 18–62).

[4]It took about 6 months to gather the final sample of 447 participants. Initially, we had 635 responses in our database. However, given problems typically associated with the use of web-based data collection, the data obtained were carefully screened. As recommended by Stanton and Rogelberg (2001), the following precautions were taken. First, only individuals that entirely completed the work simulation and all measures were included. Furthermore, responses mismatching a master list with valid identifiers were discarded. Finally, when multiple identical responses were detected in the data, all data in the multiple-response group were dropped. This left us with the final sample of 447 participants. In this regard, it is important to note that we have some evidence that response bias and participant drop-out is not a major problem for this data collection strategy. A study among employees revealed similar results relative to a replication study among students where participation was mandatory (e.g., Lievens & Anseel, 2007).

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Procedure and Measures

Participants were recruited via the website of a governmental service for employment and vocational training. This website contains freely available modules with online courses and self-assessment tools for various work-related skills (e.g. application skills, leadership skills, computer knowledge, financial courses). Given its official and free content, this website is frequently and spontaneously visited by applicants and employees looking for training and coaching in job application and general work-related skills. While one of the main motivations to visit the website might be the desire to change jobs, visitors also frequently seek development opportunities that they cannot find in their current job. The exercise was advertised as a managerial simulation that enables employees to obtain a better picture of their managerial skills or to prepare a real application procedure.

Upon completion of a short demographics questionnaire, participants were provided a random identifier that gave them access to the website containing the experiment. At the website, participants read that they would be completing an exercise often used in management development programs and procedures for selection of managers. They were informed that there were two similar versions of the test (henceforth *Version 1* and *Version 2*) and that they would receive feedback at the end of the session. Participants were encouraged to give their best effort so that they would receive accurate feedback on their managerial competencies. For the same reason as in Experiment 1 (i.e. likely interference with the achievement goal manipulations), it was not specified whether the feedback would be task- or other-referenced. The test was then described to the participants, and they were told that they would have one hour to complete the task (pilot testing indicated that most individuals could complete the exercise within a 45 minute period).

Two parallel versions of Anseel and Lievens' (2006; Lievens & Anseel, 2007) in-basket exercise (adapted from Tett & Jackson, 1990) were used, each of which consists of 10 memos and letters addressed to a General Manager of a hypothetical paint manufacturing plant. The exercise simulates, as closely as possible, the key features of an actual email software program (e.g. the opportunity to read and respond to emails in any order, ongoing access to organizational charts, appointment calendars, and background information). The emails cover a broad range of problems, including union difficulties, logistic issues, machine breakdowns, dealings with city officials, and employee absenteeism. Participants received a careful and thorough set of instructions on the nature of the task and how to complete it.

For each email message, participants were provided with four response options to the message, and were asked to evaluate the effectiveness of each on a 1 (*very ineffective*) to 5 (*very effective*) scale. These responses were then scored for the degree to which they represent managerial competence (Tett, Steele, & Beauregard, 2003; see also Anseel & Lievens, 2006).

After completing Version 1 of the test, participants were reminded that they were going to work on Version 2, a parallel of Version 1 consisting of another 10 emails, and they were reminded that they would get feedback after completing the exercise. Participants were then randomly assigned to one of the four achievement goal conditions or a no goal control condition. As in Experiment 1, in the experimental conditions, we recommended the participants to adopt a specific goal when completing Version 2. Then one of the four goals of the 2×2 achievement goal model was presented: ''*Not* to do *worse* than in Version 1'' (mastery-avoidance), ''To do *better* than in Version 1'' (mastery-approach), ''To do *better* than most other participants in Version 2'' (performance-approach), or ''*Not* to do *worse* than most other participants in Version 2'' (performance-avoidance). Note that in Experiment 2, participants were not provided with a target score or any other information during task engagement.

Following the manipulation, the participants elaborated on the goal that was assigned to them in order to intensify the achievement goal manipulation (*cf.*, Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007). Specifically, participants were asked to type what they would think and how they would feel if they received feedback that they had reached their assigned goal. After listing their goal-relevant thoughts and feelings, the goal manipulation was again presented, and then participants proceeded to complete Version 2 of the exercise. When they had completed Version 2, participants were asked to complete the same measure of perceived goal difficulty as in Experiment 1. Then, participants were provided with their actual score on each version of the test and were debriefed. The same goal manipulation check used in Experiment 1 was also used in this experiment; 78.8% of participants correctly recalled the achievement goal that was recommended to them.[3]

Results and Discussion

A 2 (Definition: performance versus mastery) $\times$ 2 (Valence: approach versus avoidance) $\times$ 2 (Time: 1 and 2) mixed model ANOVA with Definition and Valence as between-subjects factors and Time as a within-subjects factor was used to analyze

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Table 2. Means and standard deviations Experiment 2 ($n = 447$)

	Performance Version 1		Performance Version 2		Performance improvement	
	M	SD	*M*	SD	*M*	SD
Mastery-avoidance ($n = 81$)	29.32^{a}	9.51	27.19^{a}	9.02	-2.13^{a}	9.07
Performance-avoidance ($n = 85$)	28.84^{a}	8.58	30.67^{b}	9.95	1.83^{b}	8.09
Mastery-approach ($n = 98$)	28.62^{a}	11.30	30.66^{b}	10.99	2.04^{b}	10.19
Performance-approach ($n = 81$)	27.61^{a}	9.28	29.25^{ab}	10.98	1.64^{b}	9.12
Control ($n = 102$)	24.78^{b}	9.04	27.49^{a}	10.25	2.71^{b}	8.80

Note: In each column, means that differ significantly ($p < .05$) have different letters.

the data. Follow-up analyses (LSD tests) with the change scores (see Table 2) were also conducted, both to compare the specific achievement goal conditions to each other, and to anchor the goal conditions to the no goal control condition. Preliminary analyses examined the main and interactive effects of sex. No significant results were obtained in these analyses ($ps > .14$), so sex was omitted from further consideration.

The analysis revealed a marginally significant improvement effect, $F(1, 341) = 2.90$, $p < .10$; overall, participants' performance tended to increase, from $M = 28.60$ (SD = 9.77) at Time 1 to $M = 29.52$ (SD = 10.35) at Time 2. Also in line with Experiment 1, the Valence × Time interaction was significant, $F(1, 341) = 4.02$, $p < .05$. The Definition × Time interaction approached significance, $F(1, 341) = 3.24$, $p < .10$. As predicted, these (marginal) effects were qualified by the significant Definition × Valence × Time interaction, $F(1, 341) = 4.84$, $p < .05$. Follow-up analyses (see Table 2) revealed that the mastery-avoidance goal participants improved less than did performance-avoidance goal ($p < .01$, $d = .46$), mastery-approach goal ($p < .01$, $d = .43$), performance-approach goal ($p < .01$, $d = .41$), and no goal control participants ($p < .001$, $d = .54$). No differences were observed among participants in the performance-avoidance, mastery-approach, performance-approach, and no goal control conditions (all $ps > .43$).

A 2 (Definition) × 2 (Valence) ANOVA was conducted with perceived goal difficulty as the dependent variable to determine whether the obtained results could be attributed to differences in perceived goal difficulty. This analysis yielded neither main effects, nor an interaction ($ps > .32$). Furthermore, rerunning the aforementioned $2 \times 2 \times 2$ mixed model ANOVA as an ANCOVA controlling for perceived goal difficulty did not alter the observed interaction, $F(1, 340) = 4.94$, $p < .05$. Likewise, the results from the follow-up analyses remained virtually the same when controlling for perceived goal difficulty.

In sum, the results of this experiment fully replicated the effects on performance improvement observed in Experiment 1 and extended them to a real world setting. In a multiple-trial context, mastery-avoidance goals were again shown to undermine performance improvement relative to performance-avoidance, mastery-approach, and performance-approach goals, and a no goal control condition. Performance-avoidance, mastery-approach, and performance-approach goals again led to similar amounts of performance improvement, relative to each other and a no goal control. As in Experiment 1, these effects were shown to be independent of perceived goal difficulty.

GENERAL DISCUSSION

The present research is the first to demonstrate that a mastery-avoidance goal, defined as *the goal to avoid doing worse than one has done before*, can have a negative impact on performance. Specifically, the results of the present research indicated that in a context in which *intra*personal standards of competence are made salient, mastery-avoidance goals are deleterious for performance improvement relative to mastery-approach goals, performance-approach goals, performance-avoidance goals, and a no goal baseline. Neither mastery-approach nor performance-approach goals displayed a performance improvement advantage in this context, and performance-avoidance goals were not found to be inimical for performance improvement. All of these findings were independent of participants' perceptions of goal difficulty. These

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results were remarkably consistent across the two experiments that varied in terms of location of data collection (the lab versus the web), type of participants (undergraduates seeking reimbursement versus individuals in the workforce seeking employment-related development), goal manipulation (with versus without a target score), and type and length of achievement task (a verbal skills task versus an ecologically valid managerial competencies exercise).

An interesting avenue for future research would be to examine factors that account for the inimical effect of mastery-avoidance goals on performance improvement that was observed herein. One likely candidate is state test anxiety. The obvious relevance and appropriateness of an *intra*personal standard, the clearly diagnostic feedback that one receives from such a standard, and the negative focus of an avoidance-based *intra*personal standard are likely to induce anxiety about the possibility of poor performance, and accordingly, undermine performance (Deffenbacher, 1980). For example, Sideridis (2008) demonstrated that relative to mastery-approach, performance-approach, and performance-avoidance goals, mastery-avoidance goals were more strongly associated with increases in cognitive and somatic anxiety using both self-report and physiological assessments.

By presenting participants with two similar tasks in sequence, we established a context that matched the *intra*personal evaluative focus of mastery-avoidance goals, and it is here that we observed the inimical influence of these goals on performance improvement. We hasten to add that other factors must be considered before the goal-context match can be viewed as the definitive reason that we, but not others, have been able to document a link between mastery-avoidance goals and performance improvement. First, in some prior work, mastery-avoidance goals have been assessed using items that contained affective content, in addition to the evaluative standard per se; in the present work, these goals were manipulated with regard to the evaluative standard alone. It is possible that the inclusion of affective content in operationalizing these goals may interfere with their predictive utility. Second, most prior work has focused on general performance, whereas the present work focused on performance improvement on a specific task or exercise. Mastery-avoidance goals may have greater utility in accounting for specific, rather than general, performance outcomes. Third, most prior work has focused on mastery-avoidance goals grounded in a task-based standard; in the present work, we focused on mastery-avoidance goals grounded in an *intra*personal standard so that a balance in the conceptualization of achievement goals was ensured (i.e. *intra*personal versus *inter*personal standards, and approach versus avoidance). Moreover, mastery-avoidance goals grounded in *intra*personal standards may provide more diagnostic and more powerful feedback to individuals than task-based standards, and thus may have stronger effects on outcomes. Each of the aforementioned considerations is worthy of empirical attention, and could lead to a more thorough understanding of the predictive profile of mastery-avoidance goals.

Perhaps first on the empirical agenda, however, should be a more intensive look at context and its role in the predictive utility of mastery-avoidance and other achievement goals. The present research, like achievement goal research in general, examined the influence of goals in a single context, and it would be valuable in subsequent work to focus on context itself as an independent variable. Such research could start by varying the type of standard made salient in the achievement setting (e.g. *intra*personal or interpersonal), but could expand to encompass many other types of goal-context match. For example, the same achievement goal may have different effects in the context of different motivational dispositions such as need for achievement, fear of failure, or initial task interest (e.g. Harackiewicz & Elliot, 1993; Van Yperen, 2003). Likewise, the same personally adopted goal may have different effects depending on the match or mismatch of the goal with the goals of one's coworkers, boss, or organization (e.g. Kristof-Brown, Zimmerman, & Johnson, 2005; Newman, 1998). The achievement goal literature has, in the main, proceeded as though goals exert a uniform influence on processes and outcomes regardless of context. The time seems right to reevaluate this implicit assumption, and to commence a more nuanced, contextual analysis of achievement goals and their effects.

Mastery-approach goals would seem optimal forms of regulation in a context highlighting *intra*personal standards (e.g. Colquitt & Simmering, 1998; Ford, Smith, Weissbein, Gully, & Salas, 1998; VandeWalle et al., 2001). The fact that mastery-approach goals were shown to be no better predictor for performance improvement than a no goal control suggests that a deeper look at the link between mastery-approach goals and performance improvement is necessary. It is possible that these goals are most likely to improve performance in the absence of externally-provided feedback or public evaluative processes of any sort (Midgley, Kaplan, & Middleton, 2001). It may also be the case that mastery-approach goals only improve performance for tasks that are intrinsically interesting. Furthermore, it is possible that in the short run, mastery-approach goals primarily influence phenomenological outcomes such as intrinsic motivation, and strategic outcomes such as depth of processing (Elliot, McGregor, & Gable, 1999; Fisher & Ford, 1998). That is, these goals may have a minimal impact on performance improvement in the short-run, but may greatly facilitate performance improvement in the long run by sustaining effort and interest, and aiding the retention of information. These considerations suggest that

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the role of mastery-approach goals in predicting performance improvement will remain elusive until a more intricate, systematic examination of the multiple factors affecting the operation of these goals is undertaken.

The null effects on performance improvement for performance-approach and performance-avoidance goals observed in the present research are likely due, at least in part, to the fact that the achievement context highlighted *intra*personal standards. However, it is possible that the specific type of performance-based manipulation that we employed minimized the impact of these performance-based goals on performance improvement. It has been suggested that goal difficulty, in addition to achievement goals per se, may be responsible for different effects of performance-based goals and mastery-based goals (Senko & Harackiewicz, 2005). Therefore, in the present research, we operationalized performance-approach goals in terms of doing better than average (Experiment 1) or doing better than most other participants (Experiment 2), and performance-avoidance goals in terms of not doing worse than average (Experiment 1) or not doing worse than most other participants (Experiment 2). As intended, these goals were perceived as equally difficult as mastery-based goals so that perceived goal difficulty can be ruled out as an explanation for the current findings. However, these performance-based models may not represent a precise enough or important enough normative standard for participants, and thus goals grounded in these standards may not have a strong influence on behavior (although see Elliot, Cury, Fryer, & Huguet, 2006; Van Yperen, 2006). Future work on performance-based goals would do well to systematically examine the different assessments and instantiations of performance-based goals in the literature, to see if they produce the same or different predictive patterns, and to examine if possible differences may be explained in terms of goal difficulty. Furthermore, future research may examine whether individuals' goal states may mediate the observed relationships. Although participants responded consistent with the corresponding experimental condition to the manipulation check questions, we do not know whether participants internalized these goals.

Initially, the recommendation for practitioners that emerged from the achievement goal literature highlighted the facilitation of mastery goals and the minimization of performance goals (Dweck, 1986; Nicholls, 1984). With the emergence of the trichotomous achievement goal model, this recommendation was refined in terms of the facilitation of mastery goals and the minimization of performance-avoidance goals (e.g. Elliot & Moller, 2003; Harackiewicz et al., 2002; Porath & Bateman, 2006; Schmidt & Ford, 2003; VandeWalle et al., 2001). Bifurcation of the mastery goal construct in the 2×2 achievement goal model, coupled with the demonstration that mastery-avoidance goals have negative consequences for performance improvement, indicates that the message from the achievement goal literature must be refined further. Specifically, the present findings suggest that in multiple-trial contexts, mastery-avoidance goals should be minimized in order to maximize performance improvement.

In closing, the present research helps establish the importance of the fourth goal of the 2×2 achievement goal model. Little research on mastery-avoidance goals has been conducted to date, in part because these goals are a relatively new addition to the literature. However, we suspect that the paucity of extant research on mastery-avoidance goals is also due to the fact that an avoidance component of mastery-based goals is more difficult to envision than an avoidance component of performance-based goals, and empirical work to date has provided no evidence of a link between mastery-avoidance goals and indicators of actual performance. It is hoped that the clear and straightforward way in which mastery-avoidance goals were operationalized in the present research (*i.e.* ''*to avoid doing worse than one has done before*''), and the clear and consistent effects of these goals on performance improvement, will encourage others to focus their research efforts on this important, but much overlooked form of regulation.

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REFERENCES

Allison, S. T., Messick, D. M., & Goethals, G. R. (1989). On being better but not smarter than others: The Muhammad Ali effect. *Social Cognition*, *7*, 275–295.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, *80*, 260–267.

DOI: 10.1002/ejsp

Anseel, F., & Lievens, F. (2006). Certainty as a moderator of feedback reactions? A test of the strength of the self-verification motive. *Journal of Occupational and Organizational Psychology*, *79*, 533–551.
Anseel, F., Van Yperen, N. W., & Janssen, O. (2008). *Understanding feedback reactions after self-initiated career assessment: The role of achievement goals*. Unpublished manuscript.
Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, *64*, 359–372.
Bell, B. S., & Kozlowski, W. J. (2002). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology*, *87*, 497–505.
Brown, K. G. (2001). Using computers to deliver training: Which employees learn and why? *Personnel Psychology*, *54*, 271–296.
Bunderson, J. S., & Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology*, *88*, 552–560.
Colquitt, J. A., & Simmering, M. J. (1998). Conscientiousness, goal orientation, and motivation to learn during the learning process: A longitudinal study. *Journal of Applied Psychology*, *83*, 654–665.
Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social-cognitive model of achievement motivation and the 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, *90*, 666–679.
Davis, W. D., Mero, N., & Goodman, J. M. (2007). The interactive effects of goal orientation and accountability on task performance. *Human Performance*, *20*, 1–21.
Deffenbacher, J. L. (1980). Worry and emotionality in test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 111–128). Hillsdale, NJ: Erlbaum.
Deshon, R. P., & Gillespie, J. Z. (2005). A. motivated action theory account of goal orientation. *Journal of Applied Psychology*, *90*, 1096–1127.
Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, *41*, 1040–1048.
Elliot, A. J., Cury, F., Fryer, J. W., & Huguet, P. (2006). Achievement goals, self-handicapping, and performance attainment: A mediational analysis. *Journal of Sport & Exercise Psychology*, *28*, 344–361.
Elliot, A. J. (2005). *A. conceptual history of the achievement goal construct* In A. J. Elliot, & C. S. Dweck (Eds.), *Handbook of competence and motivation*. (pp. 52–72). New York: The Guilford Press.
Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, *34*, 169–189.
Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, *72*, 218–232.
Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, *70*, 461–475.
Elliot, A. J., & McGregor, H. A. (2001). A. 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, *80*, 501–519.
Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology*, *91*, 549–563.
Elliot, A. J., & Moller, A. (2003). Performance-approach goals: Good or bad forms of regulation? *International Journal of Educational Research*, *39*, 339–356.
Finney, S. J., Pieper, S. L., & Barron, K. E. (2004). Examining the psychometric properties of the Achievement Goal Questionnaire in a general academic context. *Educational and Psychological Measurement*, *64*, 365–382.
Fisher, S. L., & Ford, J. K. (1998). Differential effects of learner effort and goal orientation on two learning outcomes. *Personnel Psychology*, *51*, 397–420.
Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E. (1998). Relationships of goal orientation, metacognitive activity, and practice strategies with learning outcomes and transfer. *Journal of Applied Psychology*, *83*, 218–233.
Harackiewicz, J. M., Barron, K. E., Pintrich, P. R., Elliot, A. J., & Thrash, T. M. (2002). Revision of achievement goal theory: Necessary and illuminating. *Journal of Educational Psychology*, *94*, 638–645.
Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology*, *65*, 904–915.
Janssen, O., & Van Yperen, N. W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, *47*, 368–384.
Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*, 281–342.
Lee, F. K., Sheldon, K. M., & Turban, D. B. (2003). Personality and the goal-striving process: The influence of achievement goal patterns, goal level, and mental focus on performance and enjoyment. *Journal of Applied Psychology*, *88*, 256–265.
Lewin, K., Dembo, T., Festinger, L., & Sears, R. (1944). Level of aspiration. In J. M. Hunt (Ed.), *Personality and the behavioral disorders* (pp. 333–378). New York: Ronald Press.
Lievens, F., & Anseel, F. (2007). Creating alternate in-basket forms through cloning: Some preliminary results. *International Journal of Selection and Assessment*, *15*, 428–433.
Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist*, *57*, 705–717.
Malka, A., & Covington, M. V. (2005). Perceiving school performance as instrumental to future goal attainment: Effects on graded performance. *Contemporary Educational Psychology*, *30*, 60–80.

DOI: 10.1002/ejsp

Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology*, *93*, 77–86.
Newman, R. S. (1998). Students' help seeking during problem solving: Influences of personal and contextual achievement goals. *Journal of Educational Psychology*, *90*, 644–658.
Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, *91*, 328–346.
Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A. meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology 92*, 128–150.
Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, *82*, 792–802.
Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology 92*, 544–555.
Poortvliet, P. M., Janssen, O., Van Yperen, N. W., & Van de Vliert, E. (2007). Achievement goals and interpersonal behavior: How mastery and performance goals shape information exchange. *Personality and Social Psychology Bulletin*, *33*, 1435–1447.
Porath, C. L., & Bateman, T. S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology*, *91*, 185–192.
Schmidt, A. M., & Ford, J. K. (2003). Learning within a learner control training environment: The interactive effects of goal orientation and metacognitive instruction on learning outcomes. *Personnel Psychology*, *56*, 405–429.
Sideridis, G. D. (2008). The regulation of affect, anxiety, and stressful arousal from adopting mastery-avoidance goal orientations. *Stress and Health*, *24*, 55–69.
Seijts, G. H., Latham, G. P., Tasa, K., & Latham, B. W. (2004). Goal setting and goal orientation: An integration of two different yet related literatures. *Academy of Management Journal*, *47*, 227–239.
Senko, C., & Harackiewicz, J. M. (2005). Achievement goals, task performance, and interest: Why perceived goal difficulty matters. *Personality and Social Psychology Bulletin*, *31*, 1739–1753.
Stanton, J. M., & Rogelberg, S. G. (2001). Using internet/intranet web pages to collect organizational research data. *Organizational Research Methods*, *4*, 200–217.
Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193–210.
Tett, R. P., & Jackson, D. N. (1990). Organization and personality-correlates of participative behaviors using an In-Basket Exercise. *Journal of Occupational Psychology*, *63*, 175–188.
Tett, R. P., Steele, J. R., & Beauregard, R. S. (2003). Broad and narrow measures on both sides of the personality-job performance relationship. *Journal of Organizational Behavior*, *24*, 335–356.
VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, *57*, 995–1015.
VandeWalle, D., Brown, S. P., Cron, W. L., & Slocum, J. W. J. (1999). The influence of goal orientation and self-regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology*, *84*, 249–259.
VandeWalle, D., Cron, W. L., & Slocum, J. W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology*, *86*, 629–640.
Van Dijk, H., & Tellegen, P. J. (1994). *Testboekje GIVO: Groninger intelligentietest voor voortgezet onderwijs (Test manual GIVO: Groningen intelligence test for secondary education)*. Lisse: Swets & Zeitlinger.
Van Yperen, N. W. (1992). Self-enhancement among major league soccer players: The role of importance and ambiguity on social comparison behavior. *Journal of Applied Social Psychology*, *22*, 1186–1198.
Van Yperen, N. W. (2003). Task interest and actual performance: The moderating effects of assigned and adopted purpose goals. *Journal of Personality and Social Psychology*, *85*, 1006–1015.
Van Yperen, N. W. (2006). A. novel approach to assessing achievement goals in the context of the 2 × 2 framework: Identifying distinct profiles of individuals with different dominant achievement goals. *Personality and Social Psychology Bulletin*, *32*, 1432–1445.
Van Yperen, N. W., & Renkema, L. J. (2008). Performing great and the purpose of performing better than others: On the recursiveness of the achievement goal adoption process. *European Journal of Social Psychology*, *38*, 260–271.

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