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Van Yperen, Nico W.; Blaga, Monica; Postmes, Thomas

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A Meta-Analysis of the Impact of Situationally Induced Achievement Goals on Task Performance

Nico W. Van Yperen, Monica Blaga, and Tom Postmes

University of Groningen

The purpose of this research was to meta-analyze studies which experimentally induced an achievement goal state to examine its causal effect on the individual's performance at the task at hand, and to investigate the moderator effects of feedback anticipation and time pressure. The data set comprised 19 papers, 79 individual effect sizes, and 3,482 participants. Performance measures represented task performance across a variety of tasks. The findings indicate that relative to avoidance goals (either performance-avoidance goals or mastery-avoidance goals), approach goals (either mastery-approach goals or performance-approach goals) enhance task performance. Furthermore, relative to performance-approach goals, mastery-approach goals lead to better performance, particularly when individuals do not anticipate feedback and when there is no time pressure. Implications and future directions for research are discussed.

Successful task performance is a function of three global factors: capacity to perform, opportunity to perform, and willingness to perform (Blumberg & Pringle, 1982). *Capacity to perform* refers to the physical and cognitive capabilities that enable individuals to perform their tasks effectively and is represented by factors such as the individual's ability, health, and intelligence. The second factor, the *opportunity to perform*, refers to the help or hindrance of uncontrollable events and actors in one's environment (e.g., working conditions, equipment, social support, and organizational policies). Finally, *willingness to perform* comprises the workers' psychological characteristics that affect the degree to which workers are inclined to perform their tasks. An important component of workers' willingness to perform is their *achievement motivation*. During the past three decades, the *achievement goal approach to achievement motivation* has emerged as an influential area of research and is dedicated to understanding the reasons behind the individual's drive to achieve competence and performance (Elliot, 2005). The purpose of the present study was to examine through a meta-analysis the effects of situationally induced achievement goals on performance attainment and to investigate the moderator effects of feedback anticipation and time pressure. A meta-analysis is a quantitative summary of the pooled results of studies on the same topic and thus provides more meaningful results than any individual study on its own (e.g., Lipsey & Wilson, 2001).

In previous reviews and meta-analyses (Baranik, Stanley, Bynum, & Lance, 2010; Bodmann, Hulleman, & Schrager, 2007; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; Linnenbrink-Garcia, Tyson, & Patall, 2008; Payne, Youngcourt, & Beaubien, 2007; Van Yperen, Blaga, & Postmes, 2014), it was found that, in general, both mastery-approach goals (i.e., aimed at improvement, learning, or doing better than one has done before) and performance-approach goals (i.e., aimed at doing better than others) were related positively to performance attainment. In contrast, performance-avoidance goals (i.e., aimed at not doing worse than others) and mastery-avoidance goals (i.e., aimed at not doing worse than one had done before) were, in general, related negatively to performance attainment. However, all these previous reviews and meta-analyses focused exclusively on correlational research. Utman's paper, published in 1997, is often cited as a meta-analysis of experimental research on achievement goals but is not actually a meta-analysis of achievement goals because Utman primarily included non-goal-relevant constructs (e.g., feedback, extrinsic motivation). Because he also confounded approach and avoidance achievement goals, only one study (Giannini, Weinberg, & Jackson, 1988) from Utman's meta-analysis met the inclusion criteria used in the present meta-analysis.

Thus, in the present study, we extended the scope of previous work by conducting the first meta-analysis of *situationally induced* achievement goals and task performance. That is, we meta-analyzed studies that experimentally induced an achievement goal state to examine its causal effect on the individual's performance at the task at hand. Understanding causal relationships between achievement goals and performance attainment is important for both the advancement of the achievement goal approach and the development of effective achievement goal-based interventions. In contrast to Utman (1997), we included control conditions and examined whether the link between achievement goals and performance attainment could be qualified by the anticipation of feedback and time pressure. Furthermore, we drew upon the 2×2 framework for achievement goals that was developed by Elliot (1999; see also Pintrich, 2000) in which goals are separated by definition (mastery vs. performance) and valence (approach vs. avoidance).

THE ACHIEVEMENT GOAL APPROACH TO ACHIEVEMENT MOTIVATION

The achievement goal approach to achievement motivation defines achievement goals as mental representations of the individual's desired level of competence or undesired level of incompetence (Elliot, 2005). Initially, achievement goal theorists distinguished two types of achievement goal (e.g., Farr, Hofmann, & Ringenbach, 1993). Individuals with mastery goals focus on *task*-based or *intrapersonal* standards of competence. They define competence according to their mastery of the task or personal improvement on the task. In contrast, individuals with performance goals focus on *interpersonal* standards of competence. They define competence according to how well they perform relative to others (Elliot, 2005). Note that across various achievement domains, mastery goals have also been called "task" goals (Duda, 2001; Nicholls, 1984), or "learning" goals (Button, Mathieu, & Zajac, 1996; Dweck & Leggett, 1988). Performance goals have also been called "ability" goals in education (Ames, 1992), "prove" goals in work (VandeWalle, 1997), and "ego" goals in sport (e.g., Duda, 2001). In the current article, the terms "mastery" goals and "performance" goals are used as labels throughout.

Initially, both mastery goals and performance goals were considered implicitly to be *approach* goals (but were not necessarily operationalized as such). This means that they were

presumed to direct the individual toward attaining positive outcomes and desirable events. Contradictory findings led to the addition of an *avoidance* component for both mastery and performance goals (Elliot, 1999; Elliot & McGregor, 2001; Pintrich, 2000). Hence, in contemporary research on achievement goals, achievement goals differ in terms of the standards that individuals use to define competence (i.e., mastery vs. performance) and valence (i.e., approach vs. avoidance). Individuals who pursue mastery-approach (MAp) goals focus on task-referenced or self-referenced improvement and accomplishments, whereas individuals who pursue performance-approach (PAp) goals focus on performing better than others. Individuals who pursue mastery-avoidance (MAv) goals aim to avoid incompetence on the basis of task-referenced or self-referenced standards, whereas individuals who pursue performance-avoidance (PAv) goals focus on avoiding failure relative to others (cf., Van Yperen et al., 2014). For conceptual clarity, in the present meta-analyses, we included studies only if the experimental achievement goal manipulations fit into this 2×2 framework for achievement goals (Elliot, 1999; Elliot & McGregor, 2001).

SITUATIONALLY INDUCED ACHIEVEMENT GOALS AND TASK PERFORMANCE

As discussed earlier, previous reviews and meta-analyses on correlational data consistently report positive associations between approach goals (either MAp or PAp) and performance, whereas avoidance goals (either PAv or MAv) are typically related negatively to performance. The explanation for this pattern is that approach-based goals focus on the possibility of success, which evokes and sustains hope, eagerness, and excitement. In contrast, individuals who endorse avoidance goals use failure as the hub of regulation, which evokes and perpetuates threat, anxiety, and vigilance (Elliot, 1999; Elliot & McGregor, 2001). However, these findings based on correlational research may be explained by the influence of achievement goals on performance or, reversely, by the effects of initial performance level on the preference for specific achievement goals (Van Yperen & Renkema, 2008). Hence, one of the purposes of the present meta-analysis was to test the hypothesis that relative to avoidance goals (either MAv or PAv), pursuing approach goals (either MAp or PAp) leads to better performance (H1). To explore additional differences between goal conditions (e.g., between MAp and PAp goals), we compared all goal conditions, including no-goal control conditions, in a pairwise fashion.

In line with the findings in correlational studies, the extant experimental literature on achievement goals suggests that, in general, avoidance goals (either PAv or MAv) are detrimental for performance attainment (e.g., Elliot, Cury, Fryer, & Huguet, 2006; Elliot, Shell, Henry, & Maier, 2005; Van Yperen, Elliot, & Anseel, 2009), whereas approach goals (either PAp or MAp) are beneficial for performance attainment. However, the strength of the positive effects of approach goals on performance varies across studies. In some cases, MAp goals were found to be more beneficial for performance than PAp goals (Bereby-Meyer & Kaplan, 2005; Bergin, 1995). In other studies, either PAp goals appeared to be more beneficial for performance than MAp goals (Elliot et al., 2005, Study 2; Senko & Harackiewicz, 2005, Study 1) or MAp and PAp goals were equally beneficial for performance attainment (e.g., Elliot et al., 2006; Elliot et al., 2005, Study 1a and 1b; Kavussanu, Morris, & Ring, 2009). We suspected that specific moderating variables might account for these mixed findings. Likely candidates that could reliably be examined across the currently available studies are the anticipation of feedback and time pressure.

Feedback Anticipation and Time Pressure

Mastery goals (either approach or avoidance) are grounded in an internal standard (i.e., the task or the self) that may be used privately and at one's own discretion (Elliot, Murayama, & Pekrun, 2011). Combined with approach motivation, that is, a focus on the possibility of success, mastery goals (i.e., MAp goals) may evoke and sustain hope, eagerness, and excitement, and accordingly, direct individuals to view the task as a challenge and to persist longer (Ames, 1992; Dweck & Leggett, 1988; Elliot, 2005; Kaplan & Middleton, 2002; Pintrich, 2000). By emphasizing task mastery, learning something new, and self-improvement, MAp goals tend to direct the individual's attention to the task itself and, accordingly, to enhance task performance (Elliot, 2005).

In contrast, when pursuing performance goals, the evaluation standard is external (e.g., others or norm scores). Such a focus on external targets may interfere with attention to the task and inhibit task engagement and task performance (cf., Zeidner & Matthews, 2005). Similarly, external pressures or constraints, such as the anticipation of external feedback on one's task performance or a strict time limit to perform the task, may cause individuals to shift their attention away from the task itself to anticipated outcomes or time monitoring, respectively. Therefore, we expected that performance goals, the prospect of an externally induced personal evaluation, or a time limit in which to complete the task may undermine task performance. Presumably, this occurs through the induction of interfering thoughts that reduce the cognitive resources that are available for processing and performing the task (Sarason, Sarason, Keefe, Hayes, & Shearin, 1986).

Furthermore, avoidance goals (either PAv or MAV) focus on failure, which should be avoided, and accordingly tend to evoke and perpetuate threat and evaluation anxiety. Similar to external pressures or constraints, these self-worth concerns may shift the individual's focus away from doing what is necessary to complete the task successfully (Elliot, 1999). Thus, avoidance motivation (i.e., avoidance goals), performance goals, external evaluation pressure, or time pressure when working on a task may interfere with individuals' involvement in and focus on the task. Hence, we anticipated that the focus on MAp goals can be maintained particularly in the absence of external evaluation pressure and time pressure. For example, research has shown that when there are no time constraints, MAp goals are related more strongly than PAp goals to task involvement in terms of planning, organizing, elaborating, and integrating (Kaplan & Midgley, 1997; Nolen, 1988; Pintrich & Garcia, 1991). Therefore, H2 is that MAp goals lead to better performance than PAp goals or avoidance goals, particularly in the absence of feedback anticipation and time pressure.

METHOD

Sample of Studies

First, we conducted a computerized web-based search of PsycINFO and Web of Science (up until September 1, 2013), using the following keywords: *experiment*, *experimental*, *manipulation*, *achievement goal*, *goal orientation*, *mastery goal*, *mastery approach goal*, *mastery-approach goal*, *approach goal*, *performance goal*, *performance approach goal*, *performance-approach*

goal, avoidance goal, performance avoidance goal, performance-avoidance goal, mastery avoidance goal, mastery-avoidance goal, learning goal, learning goal orientation, task goal, task goal orientation, prove goal, prove goal orientation, performance prove goal, performance prove goal orientation, ego goal, ego goal orientation, ability goal, performance, and performance attainment. Second, we searched the reference lists of relevant meta-analyses (Utman, 1997) and narrative reviews (Linnenbrink-Garcia et al., 2008; Senko, Hulleman, & Harackiewicz, 2011). We then browsed the database of Dissertation Abstracts International to identify possible PhD dissertations on this topic while also contacting individual experts in the field for additional data and unpublished papers that could not otherwise be retrieved.

Inclusion Criteria

To be considered for inclusion in the meta-analysis, a study had to meet the following criteria:

1. Achievement goals were situationally induced and fit into Elliot's (1999) 2×2 framework for achievement goals. That is, the goals could be categorized as MAP, PAp, PAV, or MAV; see also the Goal Manipulations section and **Table 1**
2. Participants were assigned randomly to the experimental conditions.
3. The dependent variable was performance on a particular task.
4. Sufficient statistical information was presented, or obtained from the authors (e.g., means, standard deviations, number of participants in each condition, F tests, t tests, etc.), to enable calculations of effect size. For example, we could not include Barron and Harackiewicz's (2001) experimental Study 2 because performance-mastery goal contrasts were not reported independent of goal difficulty.
5. Sufficient information on the moderator variables could be extracted or obtained.

Final Sample of Studies

The final data set comprised 19 papers with a total of 3,482 participants, of which 57.99% were female. One of these papers included three studies (Elliot et al., 2005), three papers included two studies (Bereby-Meyer & Kaplan, 2005; Chalabaev, Major, Sarrazin, & Cury, 2012; Van Yperen et al., 2009), and one paper (Darnon, Butera, & Harackiewicz, 2007) included two independent samples within the same study. Thus, the total number of independent samples in the meta-analysis was 25.

In 17 of the independent samples, three or more goal conditions were compared, which created the problem of statistical nonindependence of comparisons. This was resolved by computing effect sizes through pairwise comparisons of conditions (DeCoster, 2004). For example, for a design with three conditions (e.g., MAP, PAp, and control), a total of three effect sizes can be computed (i.e., MAP vs. PAp, MAP vs. control, and PAp vs. control). From the 25 independent samples, 79 effect sizes were extracted for the final analysis. The studies were coded by two independent coders who reached a good overall agreement of 88.23% (Cohen's $\kappa = .75$) in relation to descriptive statistics (e.g., means, standard deviations, number of participants in each condition), effect size statistics, and proposed moderators (feedback anticipation, time pressure, type of task, age, sex, and nationality). The data were analyzed after disagreements were resolved through discussion to reach a consensus.

TABLE 1
Descriptive Information on the Experimental Studies Included in the Meta-Analysis

<i>Paper</i>	<i>N</i>	<i>Country</i>	<i>Type of Task</i>	<i>Feedback Anticipation</i>	<i>Time Pressure</i>	<i>Core of the Achievement Goal Manipulation</i>
Anseel et al., (2011)	939	Belgium	In-basket exercise ^b	Yes	No	MAp: do better than before PAp: do better than others
Barker, McInerney, and Dowson (2002)	200	Australia	Word game task ^a	No	Yes	MAp: master the task PAp: do well relative to others PAv: do not do worse than others
Bereby-Meyer and Kaplan (2005)	60 (Study 1) 60 (Study 2)	Israel	Card game ^b	No	No	No goal: complete the task MAp: learn and improve your ability PAp: do better than others
Bergin (1995)	51	U.S.	Studying a text for a later quiz ^a	No	No	No goal: play a game of cards MAp: learn the studied material PAp: do better than others
Blaga and Van Yperen (2011)	142	Netherlands	Grid-task ^b	Yes	Yes	MAp: do better than before PAp: do better than others
Bouffard et al., (2005)	128	Canada	Word game ^a	No	Yes	No goal: do your best MAp: solve the problem, try to improve
Chalabaev et al. (2012)	86 (Study 1) 58 (Study 2)	U.S.	Math problem ^b	No	Yes	PAp: do better than others PAp: do better than others PAv: do not do worse than others
Crouzevialle and Butera (2013)	114 (Study 2)	Switzerland	Math problem ^b	No	No	No goal: no instructions PAp: perform better than majority of others
Darnon et al. (2007)	39 (Sample 1) 39 (Sample 2)	France	Studying a text for a later quiz ^a	No	No	No goal: complete the task MAp: Acquire new knowledge, learn PAp: be better than others
Elliot et al. (2006)	101	France	Basketball dribbling ^c	Yes	No	No goal: no instructions MAp: make progress, improve PAp: do better than others PAv: do not do worse than others

Elliot et al. (2005)	101 (Study 1a)	Germany (Study 1a)	Math (Study 1A) ^b	Yes	Yes	MAp: learn (to solve the problems) PAp: do well compared to others PAv: do not do worse than others
	36 (Study 1b)	Germany (Study 1b)	Verbal (Study 1B)			
Giannini et al. (1988)	31 (Study 2)	U.S. (Study 2)	Scrabble (Study 2) ^a			
	60	U.S.	Basketball ^c	Yes	Yes	MAp: improve on past performance PAp: do better than others No goal: no instructions MAp: develop your skills PAp: do better than others MAp: focus on learning and mastery PAp: do better than others
Jagacinski et al. (2001)	256	U.S.	Brain storming Task ^b	No	Yes	PAp: do not do worse than others MAp: improve on past performance PAp: do better than others
Kavussanu et al. (2009)	87	UK	Golf putting ^c	Yes	No	PAp: do not do worse than others MAp: improve on past performance PAp: do better than others PAv: do not do worse than on past performance
Ntoumanis et al. (2009)	136	UK	Darts throwing ^c	Yes	No	MAp: learn (to solve the problems) No goal: do some problems MAp: develop and improve your mastery of the skill PAp: do better than other people MAp: learn PAp: do better than others MAp: do better than before PAp: do better than others PAv: do not do worse than others MAv: do not do worse than before No goal: no instructions
Schunk (1996)	40 (Study 2)	U.S.	Math problems ^b	No	No	
Senko et al., (2013)	106 (Study 1)	U.S.	Math problem ^b	Yes	Yes	
Senko and Harackiewicz (2005, Study 1)	50	U.S.	Puzzles ^b	Yes	Yes	
Van Yperen et al. (2009)	115 (Study 1)	Netherlands	Verbal skills task (Study 1) ^a	Yes	Yes	
	447 (Study 2)		In-basket exercise ^b (Study 2)			

Note. Achievement Goal Manipulation: MAp = Mastery-approach; PAp = Performance-approach; PAv = Performance-avoidance; MAV = Mastery-avoidance. Type of task: ^aVerbal. ^bReasoning. ^cPhysical activity.

Goal Manipulations

For conceptual clarity, we included studies only if the experimental achievement goal manipulations fit into Elliot's 2×2 framework for achievement goals (Elliot, 1999; Elliot & McGregor, 2001; cf. Pintrich, 2000), in which goals are separated by definition (mastery vs. performance) and valence (approach vs. avoidance). Specifically, in MAp goal conditions, participants were directed toward a positive outcome that was based on a self-referenced (or intrapersonal) standard (e.g., do better than before) or a task-referenced standard (e.g., master the task, solve the problem). In PAp goal conditions, participants were directed toward a positive outcome that was based on an other-referenced (or interpersonal) standard (e.g., do better than others, do well relative to others). In PAv goal conditions, participants were directed toward avoiding a negative outcome that was based on an other-referenced standard (e.g., not to do worse than others), whereas in MAV goal conditions, participants were directed toward avoiding a negative outcome that was based on a self-referenced standard (e.g., not to do worse than before). Either control conditions lacked any specific goal instructions (e.g., "Complete the task") or participants were instructed to simply do their best. Detailed information about each of the experimental studies, including the manipulations of achievement goals, is presented in [Table 1](#).

Dependent Variable

In all studies that were included in the meta-analysis, the dependent variable was performance on tasks such as mathematics, basketball dribbling, and brainstorming (for an overview, see [Table 1](#)).

Moderators

Anticipation of feedback is a dichotomous variable ("yes" vs. "no"). If yes, participants were told they would receive feedback, either during task pursuit (e.g., Blaga & Van Yperen, 2011; Kavussanu et al., 2009) or immediately after task completion (e.g., Elliot et al., 2005; Senko & Harackiewicz, 2005). Notably, participants in mastery goal conditions expected task-referenced or self-referenced feedback, whereas individuals in performance goal conditions expected other-referenced feedback.

Time pressure is a dichotomous variable as well ("yes" vs. "no"). If yes, there was a strict limit (which did not exceed 45 min) within which the task needed to be performed (e.g., Elliot et al., 2005; Jagacinski, Madden, & Reider, 2001; Senko & Harackiewicz, 2005; Van Yperen et al., 2009). In case of no time pressure, participants were allowed ample time for the task (Schunk, 1996), or no time limit was mentioned (e.g., Bereby-Meyer & Kaplan, 2005).

Type of task was coded into three global categories: 1 (verbal), 2 (reasoning), and 3 (physical performance). Verbal tasks include language tests that were multiple choice (e.g., Darnon et al., 2007) and tests of verbal skills (e.g., Elliot et al., 2005). Reasoning tasks include playing card games (e.g., Bereby-Meyer & Kaplan, 2005) and brainstorming tasks (e.g., Jagacinski et al., 2001). Physical activity tasks were basketball dribbling tasks (e.g., Elliot et al., 2006), golf-putting exercise (Kavussanu et al., 2009), and dart-throwing exercises (e.g., Ntoumanis, Thøgersen-Ntoumani, & Smith, 2009).

Finally, *nationality* was coded into three categories: 1 (U.S./Canada), 2 (Europe), and 3 (other). *Age* and *sex* were recorded as continuous variables, with *sex* calculated as the proportion of female participants (ranging from 0 to 1) and coded as missing in one study (Bereby-Meyer & Kaplan, 2005).

Coding of Individual Effect Sizes

Because we were interested in direct comparisons between two mean values, Cohen's *d* was used as the effect size statistic. For example, the effect size of the MAp goal versus PAp goal comparison was obtained by subtracting the mean for the PAp goal from the mean for the MAp goal and dividing this difference by their pooled standard deviations (Hedges & Olkin, 1985). A positive effect size value would indicate better performance when pursuing a MAp goal over a PAp goal, whereas a negative effect size value would indicate the opposite. Where necessary, reported statistics other than means and standard deviations (e.g., *F* tests, *t* values) were used to calculate effect size statistics (Lipsey & Wilson, 2001).

By comparing each of the four achievement goal conditions (MAp, PAp, PAv, and MAV), along with a no-goal control condition, in a pairwise fashion, a maximum of 10 goal comparisons were possible. However, given that the MAV versus no goal comparison was tested in only one study (Van Yperen et al., 2009), nine comparisons were analyzed (see Table 2).

Subsequent analyses, in which effect sizes were weighted by the inverse mean variance, were conducted in SPSS using Wilson's (2010) macros for meta-analytical research. All statistical analyses of the data were performed under a random-effects model (Hedges & Vevea, 1998).

RESULTS

Goal Contrasts

An overview of the nine goal comparisons are presented in Table 2. When the 95% confidence interval does not include zero, the two means compared are reliably different. The positive values

TABLE 2
Results for Goal Comparisons

<i>Goal Comparisons</i>	<i>d_w</i>	<i>95% CI</i>	<i>k</i>	<i>Z</i>	<i>Q_w</i>
MAp vs. PAp	.16	[.03, .30]	21	2.33*	41.03**
MAp vs. PAv	.35	[.09, .61]	9	2.65**	18.53*
MAp vs. MAV	.43	[−.02, .88]	3	1.86 [†]	6.01*
MAp vs. No goal	.42	[.11, .73]	10	2.67**	28.92**
PAp vs. PAv	.27	[.03, .50]	11	2.18*	22.93*
PAp vs. MAV	.31	[.04, .59]	3	2.23*	2.43
PAp vs. No goal	.07	[−.20, .33]	12	.49	35.40**
PAv vs. MAV	.35	[.03, .68]	3	2.12*	3.21
PAv vs. No goal	−.01	[−.19, .19]	5	−.04	1.10

Note. *d_w* = weighted mean difference effect size; CI = confidence intervals; *k* = number of effect sizes; *Z* = *z* score; *Q_w* = within-class goodness-of-fit statistic.

p* < .05. *p* < .01. [†]*p* = .06.

of the weighted effect sizes show that MAP goals had a beneficial effect on performance relative to PAV goals ($d_w = .35$, $Z = 2.65$, $p < .01$) and MAV goals ($d_w = .43$, $Z = 1.86$, $p = .06$). Similarly, PAp goals had a beneficial effect on performance relative to PAV goals ($d_w = .27$, $Z = 2.18$, $p < .05$) and MAV goals ($d_w = .31$, $Z = 2.23$, $p < .05$). These results provide empirical support for H1: Relative to avoidance goals (either MAV or PAV), pursuing approach goals (either MAP or PAp) leads to better performance.

Additional comparisons between goal conditions revealed that pursuing MAP goals leads to slightly better performance relative to PAp goals ($d_w = .16$, $Z = 2.33$, $p < .05$) and to substantially better performance than when no goal is imposed ($d_w = .42$, $Z = 2.67$, $p < .01$). Furthermore, the few studies that have compared both avoidance goals suggest that relative to PAV goals, pursuing MAV goals has a more detrimental effect on performance ($d_w = .35$, $Z = 2.12$, $p < .05$).

Moderator Testing

Experimental achievement goal research to date has focused primarily on approach goals. Specifically, the effects of MAP goals and PAp goals were examined in all experimental achievement goal studies, with the exception of three studies (Chalabaev et al., 2012; Crouzevialle & Butera, 2013; Schunk, 1996). Given the relatively small number of experimental studies on avoidance goals, reliable moderator analyses could be conducted only for the MAP–PAp goal comparison ($k = 21$). **Table 2** shows that for the MAP versus PAp comparison, the within-class goodness-of-fit statistic (Q_w) was significant, $Q_w = 41.03$, $p < .01$, which indicated heterogeneity, and accordingly, suggests that moderators may be found. As expected, the anticipation of feedback, $Q_b(1) = 4.38$, $p = .04$, and time pressure, $Q_b(1) = 4.99$, $p = .03$, were reliable moderators (see **Table 3**). In experiments in which participants *did not* anticipate feedback ($d_w = .35$,

TABLE 3
Moderator Analyses: MAP versus PAp Goals

Moderator	Between-Class Effects						
	Q_b	df	d_w	95% CI	k	Z	Q_w
Feedback anticipation	4.38*	1					
1. Yes			.05	[−.12, .22]	13	.61	7.89
2. No			.35	[.13, .57]	8	3.10**	15.38*
Time pressure	4.99*	1					
1. Yes			.03	[−.14, .21]	12	.39	7.64
2. No			.35	[.14, .57]	9	3.20**	13.29**
Task type	2.81	2					
1. Verbal			.36	[.06, .67]	6	2.38*	7.66
2. Reasoning			.14	[−.03, .31]	11	1.61	14.18
3. Physical performance			−.01	[−.33, .32]	4	−.04	2.26
Nationality	2.47	2					
1. U.S./Canada			.07	[−.18, .31]	7	.55	8.04
2. Europe			.15	[−.04, .35]	11	1.56	8.84
3. Other			.44	[.05, .83]	3	2.19*	5.91*

Note. Q_b = between-class goodness of fit statistics; d_w = weighted mean difference effect size; CI = confidence intervals; k = number of effect sizes; Z = z score; Q_w = within-class goodness-of-fit statistics. * $p < .05$. ** $p < .01$.

$Z = 3.10, p < .01$), or had *no* time pressure ($d_w = .35, Z = 3.20, p < .01$), MAp goals had a more beneficial effect on performance than PAp goals. When participants anticipated feedback ($d_w = .05, Z = .61, p = .54$) or worked under time pressure ($d_w = .03, Z = .39, p = .70$), there was no difference between the two experimental achievement goal conditions. Altogether, these results provide empirical support for H2: MAp goals lead to better performance than PAp goals or avoidance goals, particularly in the absence of feedback anticipation and the absence of time pressure.

For *type of task*, MAp goals were more beneficial for performance than PAp goals only when participants worked on verbal tasks ($d_w = .36, Z = 2.38, p < .05$). For reasoning tasks and physical performance tasks, there were no differences between MAp and PAp goal pursuit. Furthermore, relative to PAp goals, MAp goals were more beneficial for performance in studies where *nationality* was categorized as “other” ($d_w = .44, Z = 2.19, p < .05$). However, due to the low number of effect sizes ($k = 3$; see [Table 2](#)), this result should be interpreted with caution. Last but not least, *age* and *sex* did not emerge as moderators of the MAp goal versus PAp goal comparison ($B_{\text{age}} = -.006, Z_{\text{age}} = -.58, p_{\text{age}} = .56$; $B_{\text{sex}} = .007, Z_{\text{sex}} = 1.73, p_{\text{sex}} = .08$).

GENERAL DISCUSSION

Previous meta-analyses of research on achievement goals and performance attainment only focused on correlational studies (Baranik et al., 2010; Bodmann et al., 2007; Hulleman et al., 2010; Payne et al., 2007; Van Yperen et al., 2014). Hence, drawing upon the 2×2 achievement goal framework developed by Elliot (1999); Elliot & McGregor (2001), our meta-analysis on *situationally induced* achievement goals and task performance is a major addition to the extant achievement goal literature. Although often cited as such, Utman’s (1997) meta-analysis is not actually a meta-analysis of experimental research on achievement goals. This is because Utman primarily included non-goal-relevant constructs (e.g., feedback, extrinsic motivation). He also confounded approach goals with avoidance goals, did not include control conditions, and ignored potential moderator variables. We addressed all of these issues in the current meta-analysis.

In the present meta-analysis, we systematically reviewed 19 papers that had been published up to September 2013, which comprised 79 individual effect sizes and 3,482 participants. Arguably the strongest and most consistent effect was that relative to avoidance goals (either PAv or MAv), approach goals (either MAp or PAp) *caused* better performance. We found this pattern across studies in which the experimental achievement goal manipulations fit into Elliot’s 2×2 framework for achievement goals (Elliot, 1999; Elliot & McGregor, 2001). For reasons of conceptual clarity, we propose that in future studies and interventions, experimental manipulations or interventions comply with this conceptualization, which would enhance theoretical development and improve our understanding of the (lack of) effectiveness of achievement goal interventions. Furthermore, to facilitate the comparison of results across methodologies, the same conceptualization of competence should be used when *measuring* individuals’ freely adopted achievement goals. That is, achievement goal measures (e.g., Elliot et al., 2011; Van Yperen & Orehek, 2013) should be stripped of any non-goal-relevant language and be rooted exclusively in the two fundamental components of competence: how competence is defined and how it is valenced (Van Yperen et al., 2014). Comparisons between findings in experimental research and field studies will also be easier if the individual’s *dominant* achievement goal is

assessed. That is, in experimental research, a particular achievement goal is imposed on the individual, which is assumed to be the individual's dominant achievement goal in the experimental setting. Similarly, in field research, individuals can be asked to indicate their dominant achievement goal in a particular achievement setting (Van Yperen, 2006; Van Yperen & Orehek, 2013).

An explanation for the stronger effect of approach goals (relative to avoidance goals) on performance may be that focusing individuals on the possibility of success (other-referenced, self-referenced, or task-referenced) elicits challenge appraisal (Skinner & Brewer, 2002). Seeing the task as a challenge tends to evoke effort and persistence, and subsequently benefits performance attainment (cf. Elliot et al., 2011). In contrast, the pursuit of avoidance goals (both PAv and MAV), which by definition focus the individual on negative outcomes (i.e., the possibility of failure relative to others, the self, or the task), may be perceived as fundamentally aversive (Elliot, 1999). Hence, these goals tend to evoke a host of negative feelings and cognitions, including anxiety, disorganization, and self-handicapping, which subsequently undermine performance attainment (e.g., Cury, Elliot, Da Fonseca, & Moller, 2006; Elliot & Harackiewicz, 1996). The added value of this first meta-analysis on the impact of situationally induced achievement goals on objective performance criteria is particularly high in combination with previous meta-analyses on correlational research on the same topic (Baranik et al., 2010; Bodmann et al., 2007; Hulleman et al., 2010; Payne et al., 2007; Van Yperen et al., 2014). Across methodologies, approach goals (either mastery or performance) are associated positively with performance attainment, whereas avoidance goals (either mastery or performance) are related negatively to performance attainment.

Although approach goals lead to better performance, our findings suggest that, relative to PAP goals, MAP goals are especially beneficial in this regard. Additional moderator analyses revealed this effect to be strongest in the absence of both the anticipation of feedback and time pressure. In particular when there are no such external pressures or constraints, MAP goals may reinforce individuals' feelings of autonomy and self-determination (Deci & Ryan, 1985; Elliot & McGregor, 2001; Pintrich & Garcia, 1991) and keep their performance efforts channeled toward their intrapersonal standards. External factors such as the anticipation of feedback and time pressure, but also, for example, the threat of stereotyping, concern about negative feedback, and praise for being smart rather than praise for effort (e.g., Mueller & Dweck, 1998; Steele & Aronson, 1995; Sternberg & Grigorenko, 2001), may undermine task performance. These factors tend to shift the individual's attention away from the task through task-irrelevant interfering thoughts, which undermine performance attainment (e.g., Sarason et al., 1986).

Future Research Needs

The total of 19 papers included in the present meta-analysis, yielding 79 effect sizes, is certainly enough to give us meaningful estimates of the underlying population effect size. However, it should be emphasized that more experimental achievement goal studies should be conducted (on avoidance goals in particular) to test contrasts between all goals from the 2×2 achievement goal framework and the effects of specific moderators. Similarly, there are currently not enough studies available to conduct reliable comparisons in how task-referenced versus self-referenced mastery goal conditions compare to other goal conditions (i.e., no goal and performance goal

conditions). As can be seen in **Table 1**, almost all studies included in the current meta-analysis operationalized mastery goals with self-referenced standards (e.g., learn, improve, do better than before, etc.), and occasionally with a combination of task- and self-referenced standards (e.g., solve the problem and try to improve). Future meta-analyses may address these issues by adding the studies that will appear in the years to come.

Future experimental achievement goal studies may focus on MAv goals in particular, also because of the perceived importance and high prevalence of MAv goals in achievement situations (e.g., Baranik et al., 2010; De Lange, Van Yperen, Van Der Heijden, & Bal, 2010; Elliot et al., 2011; Van Yperen, 2006; Van Yperen & Orehek, 2013). Although MAv goals, in contrast to PAv goals, contain a mastery component that is associated traditionally with more adaptive performance outcomes (Elliot & McGregor, 2001), our results suggest that MAv goals might have a stronger negative effect on performance than PAv goals. One possible explanation is that the anticipated outcome of performing worse than one did before might be perceived as being even more threatening than losing to others. Relative to other-referenced failures, there is less room for appropriate excuses for self-referenced failures (Van Yperen et al., 2009), particularly when the conditions were the same as before. Indeed, MAv goals in particular seem to be linked strongly and positively to fear of failure and to cognitive and somatic anxiety, as well as to negative physiological responses, such as an increased heart rate (Sideridis, 2008). However, due to the limited availability of data, findings on the effects of MAv goals should be interpreted with caution.

Future studies may also be designed to examine the moderating effect of other variables than feedback anticipation and time pressure. For example, Elliot et al. (2005) demonstrated that PAp goals are particularly likely to lead to better performance when the participants did believe that they could earn extra-credit points on a subsequent task *only* if they reached their imposed achievement goal on the initial task (i.e., when performance contingencies were present in the achievement context). Similarly, traitlike variables may moderate the effect of achievement goals on performance attainment. However, there is no reason to be overly optimistic about the predictive utility of traitlike variables, because these variables are operationalized and measured at a different level than task performance (for an elaborate discussion on this issue, see Fishbein & Ajzen, 2010). This may be the reason why none of the studies included in the present meta-analysis examined possible moderating effects of traitlike variables, including traitlike goal orientations. Although measures of the individual's goal orientation often has been treated as a stable, traitlike individual-difference characteristic (e.g., Button et al., 1996; Payne et al., 2007), the achievement goal concept seems to be best suited for the context-specific level (cf. VandeWalle, 1997). To illustrate, Van Yperen, Hamstra, and Van der Klauw (2011) showed that individuals tend to hold different dominant achievement goals in different achievement domains (work, education, and sports). Specifically, only 21% consistently preferred one particular achievement goal across the three achievement domains. In line with this reasoning, the only study included in the current meta-analysis that explored (but did not find) a moderating effect of personal achievement goals measured these at the same specific level as the achievement goal manipulation (Ntoumanis et al., 2009). Notably, as pointed out by Elliot (2005), the achievement goal approach originated, in part, as a critique of traitlike constructs, especially the need for achievement. Currently, many theories advocate a causal process in which different dispositions cause different types of goal pursuit (Elliot & Church, 1997; McCabe, Van Yperen, Elliot, & Verbraak, 2013).

Practical Implications

Findings from survey research on achievement goals are valuable and useful for providing ecologically valid information regarding the prevalence of achievement goals and their associations with performance and other outcomes of interest. However, to enhance organizational effectiveness, companies' productivity, and economic success, we should know what the actual *causal effects* are of achievement goals on these outcomes. That is, only findings from experimental achievement goal research provide a solid basis for the development of effective achievement goal interventions in organizations (cf. Van Yperen & Orehek, 2013). With the aim of performance enhancement, achievement goal-based interventions should focus in particular on promoting MAP goals for several reasons. First, this first meta-analysis of experimental research on achievement goals suggests that MAP goals have a stronger effect on performance attainment than PAp goals, avoidance goals (either PAv or MAV), and no-goal control conditions. Second, our findings indicate that PAp goals may be beneficial for performance attainment as well, but owing to the ubiquity of other-referenced performance evaluations (e.g., Wheeler & Miyake, 1992), there is typically no need to strengthen other-referenced criteria and performance-based goals. Even among mastery goal individuals, there is a consistent, dominant reliance on social comparisons over temporal comparisons in their performance self-evaluations (Van Yperen & Leander, 2014). Third, in general, the pursuit of MAP goals is considered to be the ideal type of competence-based regulation (e.g., Elliot, 2005; Pintrich, 2000). Although PAp goals have consistent positive effects on performance attainment, undesirable social and ethical consequences of these goals might caution practitioners against their promotion (for a discussion on this issue, see Van Yperen et al., 2014). Notably, an emphasis on MAP goals does not imply the absence of interpersonal standards, social comparison, or competition. In contrast, with any achievement setting some form of interpersonal evaluation is apparent and even necessary (e.g., Becker, 1957). The key is the extent to which managers, teachers, and coaches emphasize interpersonal versus intrapersonal standards by linking these, for example, to feedback procedures and reward systems.

Our meta-analytic findings suggest that the positive effect of mastery goal interventions on performance can be undermined by time pressure and the anticipation of feedback. Hence, effective MAP goal interventions may be more difficult to implement in contexts that require the worker to meet strict deadlines (e.g., journalism) or in jobs with a large amount of competition (e.g., marketing and sales). But also in these contexts and jobs, a MAP goal-oriented motivational climate can be strengthened by emphasizing evaluation more in terms of progress and effort; by defining success more in terms of improvement; by accepting errors or mistakes as part of the learning process, particularly in training programs; and by emphasizing enjoyment, interest, and collaboration (Ames, 1992; Van Yperen, 2003). Furthermore, because of people's dominant reliance on social comparisons when engaging in performance evaluations (Van Yperen & Leander, 2014), leaders, managers, and supervisors need to structurally emphasize MAP goals and explicitly—and perhaps repeatedly—remind their subordinates to consider their MAP goal when self-evaluating their job performances.

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