

Task Interest and Actual Performance: The Moderating Effects of Assigned and Adopted Purpose Goals

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This research examined whether and which purpose goals moderate the relationship between task interest and actual performance and whether assigned goals have different effects (Study 1) than adopted goals (Study 2). Two studies were conducted using a full 2×2 design of the performance–mastery and approach–avoidance distinctions, plus control conditions. In the control conditions, that is, in a neutral purpose goal context, the expected positive relationship between initial task interest and actual performance was found. In a purpose goal context, this link held only for a congruent mastery–approach goal (either assigned or adopted). The gain in task interest found in a neutral purpose context was observed in the purpose goal conditions only when participants attained their purpose goals. It was concluded that having an incongruent purpose goal may undermine the positive effect of prior task interest on actual performance as well as on subsequent task interest.

The complexity of predicting actual task performance is clear when one considers the great number of factors that determine actual performance (Ford, 1992), including characteristics internal to the individual (such as needs, values, and abilities) and various contextual characteristics (such as quality of instruction, external rewards, and the social and cultural environment). Overall, however, task interest seems to be an important predictor of actual performance (for reviews, see Ford, 1992; Lepper & Henderlong, 2000; Renninger, 2000; Ryan & La Guardia, 1999). Interest is associated with focused attention, cognitive functioning, and persistence (Hidi, 2000), all of which are likely to enhance performance (Ford, 1992; Locke & Latham, 1990). For example, three studies conducted by Gottfried (1985) among children in Grades 4–8 demonstrated that intrinsic interest is positively related to school achievement as measured by both standardized achievement tests and teacher grades. More recently, Harackiewicz and her colleagues reported positive correlations between students' interest in the class and final course grades obtained from departmental records (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Harackiewicz, Barron, Tauer, & Elliot, 2002). The direct implication of this for achievement settings is that managers, teachers, coaches, and so on should foster task interest, capitalize on individuals' prior interests, and know about the factors that may undermine the

positive effect of task interest on performance (Sansone & Harackiewicz, 2000). The aim of the present study was to examine goal context as a factor that may moderate the interest–performance link.

The concept of goals is at the center of almost all major theories used to explain motivational processes and outcomes (Austin & Vancouver, 1996; Mitchell, 1997). In goal-setting theory (for a review, see Locke & Latham, 1990), a goal has typically been operationalized as a *target goal*, that is, a representation of an end or result that an individual aims to achieve, such as producing five pieces an hour, or running 100 yards in 10 s. Achievement goal theorists have proposed a novel conceptualization of goals, defining a *goal* as the purpose for which one engages in a task (Harackiewicz & Sansone, 1991). Initially, achievement-related purpose goals were discussed and examined in terms of two major classes (Ames, 1992; Duda, 2001; Nicholls, 1984). *Mastery goals* reflect the desire to develop and gain competence, whereas *performance goals* reflect the desire to demonstrate competence relative to others.¹ Recently, Elliot and his colleagues (Elliot, 1999; Elliot & Covington, 2001; Elliot & McGregor, 2001) argued and demonstrated that approach–avoidance is a fundamental and basic distinction that also deserves a central place in the conceptualization of purpose goals. *Approach goals* are directed toward positive or desirable events, whereas *avoidance goals* are aimed at avoiding negative or undesirable events. Hence, Elliot and McGregor (2001) proposed a 2×2 conceptualization of purpose goals that

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¹ In this article, the terms *mastery goal* and *performance goal* are used as labels throughout. Others have referred to mastery goals as *task goals* (Duda, 2001; Nicholls, 1984), *learning goals* (Dweck, 1999), or *intrinsic goals* (Pintrich & Garcia, 1991). A performance goal has also been called an *ego goal* (Duda, 2001; Nicholls, 1984), an *ability-focused goal* (Ames, 1992), a *relative ability goal* (Midgley et al., 1998), an *extrinsic goal* (Pintrich & Garcia, 1991), or a *competitive goal* (Roberts, 1992). Others expanded the mastery versus performance distinction beyond achievement situations and referred to the goals as *belief in growth* and *belief in destiny* (Knee, 1998) or *growth-seeking* and *validation-seeking* (Dykman, 1998).

includes each combination of the mastery–performance and approach–avoidance distinctions. Individuals pursuing *mastery–approach goals* are motivated to learn and to achieve personal growth, and individuals pursuing *performance–approach goals* are motivated to outperform others and to demonstrate their competence and superiority. Conversely, individuals who have mastery–avoidance goals strive to avoid deterioration, losing their skill, or leaving the task incomplete or unmastered, and individuals with performance–avoidance goals wish to avoid failure and avoid looking incompetent relative to others (cf. Elliot, 1999; Pintrich, 2000b).

In the present study, the positive relationship between initial task interest and performance was first replicated in a neutral purpose goal context (i.e., the control conditions). I argue and demonstrate that achievement-related purpose goals,² either assigned (Study 1) or adopted (Study 2), that are incongruent with task interest may undermine the positive effect of task interest on actual performance. Purpose goals that are incongruent with task interest do not focus on mastering the task, skill development, or the interesting aspects of the task itself. Rather, incongruent purpose goals create different means of achieving and different concerns about reaching or not reaching the desired outcome (Dweck, 1999; Molden & Dweck, 2000) and therefore may shift attention away from the aspects of the task that were initially found to be interesting.

Achievement goal theorists generally view mastery–approach goals as the ideal form of competence-based regulation (e.g., Ames, 1992; Duda, 2001; Lepper & Henderlong, 2000; Nicholls, 1984; Pintrich, 2000b). Mastery–approach goals are grounded in the need for achievement and high competency expectancies and may lead individuals to view the task as a challenge, elicit feelings of excitement, and encourage cognitive and affective immersion in the activity (Elliot & Church, 1997; Elliot & McGregor, 2001; Rawthorne & Elliot, 1999). Accordingly, a mastery–approach goal is congruent with task interest because it directs the individual to the same end, that is, personal improvement, skill development, the interesting aspects of the task, and positive and desirable outcomes.

In contrast, for individuals high on task interest, performance goals and avoidance goals may create different means of achieving and different concerns about reaching or not reaching the desired outcome and therefore are assumed to be incongruent with task interest. When pursuing performance goals, an initially interested individual may be distracted by cognitive interferences about how his or her ability level compares with the ability levels of others. An illustrative, well-documented example is the decline in children's interest and intrinsic motivation³ over Grades 3–8 (Harter, 1981; Hidi, 2000; Lepper & Henderlong, 2000; Lepper, Sethi, Daldin, & Drake, 1997), which can be explained by a maladaptive shift in the children's purpose goals. In their review, Lepper and Henderlong (2000) provided evidence that as children progress through the school system, teachers put more emphasis on performance goals relative to mastery goals. This shift may make children more concerned about how their ability levels compare with the ability levels of others over which they lack personal control and may lead to reduced involvement, less focus, and decreased persistence and, subsequently, to a decline in performance level (cf. Ames, 1992; Duda, 2001; Nicholls, 1984). In line with this reasoning, a meta-analysis of research in which purpose goals were

fostered experimentally demonstrated that the pursuit of assigned performance goals rather than assigned mastery goals has an undermining effect on actual performance (Utman, 1997).⁴ This may be particularly true for individuals high on initial interest, but this has not yet been examined.

In a similar vein, avoidance goals, either performance or mastery oriented, which are focused on the possibility of failure evoke threat appraisal and low competence expectancies, disrupt concentration, and elicit anxiety, processes that are detrimental to task interest and actual performance (Elliot, 1999; Elliot & Covington, 2001; Elliot & McGregor, 2001; Pintrich, 2000b; Rawthorne & Elliot, 1999). Individuals who pursue avoidance goals report more negative affect and anxiety (e.g., Elliot & McGregor, 2001) and are not engaged in the interesting aspects of the task owing to their focus on avoiding negative or undesirable events (Linnenbrink & Pintrich, 2000). Even a successful avoider is likely to feel relief rather than enjoyment (Carver & Scheier, 1998). Thus, assuming that incongruent purpose goals undermine the positive relationship between task interest and actual performance, Hypothesis 1 is that only among individuals who have a mastery–approach goal does a positive relationship exist between initial task interest and actual performance.

Furthermore, individuals who endorse mastery–approach goals may gain task interest. Mastery–approach goals (also referred to as *intrinsic goals*; see Footnote 1) are typically portrayed as promoting the feeling that the task is enjoyable and interesting for its own sake by fostering perceptions of challenge, supporting self-determination and feelings of autonomy, and emphasizing learning and personal growth, all factors presumed to facilitate task interest, intrinsic motivation, and actual performance (e.g., Deci & Ryan, 1985; Dweck, 1999; Harackiewicz et al., 1997; Rawthorne & Elliot, 1999; Vallerand, 1997). Hence, Hypothesis 2 is that only a mastery–approach goal will enhance subsequent task interest.

Likewise, goal attainment, or positive competence feedback, may enhance task interest because feeling competent is an important basis of task interest and intrinsic motivation (e.g., Bandura, 1982; Deci & Ryan, 1985; Sansone & Smith, 2000; Vallerand, 1997). Phrased differently, people tend to be interested in activities and tasks they appear to be good at (Lepper & Henderlong, 2000). For example, a well-documented finding in the goal-setting literature is that goal attainment leads to positive affect and an increase in task interest, whereas failure to attain one's goal typically produces negative affect and a decline in task interest (Locke & Latham, 1990). This effect may be independent of the purpose of

² Purpose goals can encompass other reasons for engaging in an activity that do not involve achievement, for example, being able to help people (Sansone & Smith, 2000).

³ Intrinsic motivation is a broader general concept than task interest, but *intrinsic motivation* and *intrinsic interest* are often considered to be practically synonymous terms (Hidi, 2000).

⁴ Utman (1997) used *mastery goal* and *performance goal* as labels rather than *mastery–approach* and *performance–approach*, respectively. However, included in his meta-analysis were studies that met, among other things, the following criterion: "It compared the performance of a learning group (suggestion that learning, self-improvement were important and possible) with that of a performance goal group (suggestion that demonstrating high ability was important and possible)" (p.174).

the goal (R. Butler, 2000). Accordingly, Hypothesis 3 states that goal attainment enhances subsequent task interest.

To test the three hypotheses, a full 2×2 design of the mastery–performance and approach–avoidance distinctions was used in which clear and unambiguous goal concepts were included. For each participant, the target goal was to attain a score of 22 or more correct answers, but the purpose (or framing) of the goal depended on the condition. For performance goals, the numerical criterion was framed in terms of other-referenced comparisons, whereas for mastery goals, the purpose was presented in a self-referenced framework. For approach goals, the purpose was to achieve a positive outcome, and the purpose of an avoidance goal was to avoid a negative outcome. First of all, however, it was confirmed that in a neutral purpose goal context, a positive relationship exists between initial task interest and actual performance.

Study 1

Method

Participants. The participants ($N = 165$) were 57 (35%) students from professional schools and institutes in the Netherlands, primarily from Schools of Education (39%) and Technology (41%); and 108 (65%) students from a university in the Netherlands, divided across several departments, including the Departments of Arts (27%), Medicine (18%), Management (18%), Social Sciences (11%), and Mathematics and Physics (10%). The participants were recruited during 1st-year lectures and were paid 5 Euros (approximately \$5 US) for their participation. The ages of the participants ranged from 17 to 26 years, and the mean age was 20.4 years ($SD = 1.9$). The participants were randomly assigned to experimental conditions, with men ($n = 79$) and women ($n = 86$) equally divided across the conditions. Gender differences were explored, but no evidence of gender-related effects of the relationships identified was found.

Procedure. The participants were randomly assigned to conditions in a 2 (performance vs. mastery) $\times 2$ (approach vs. avoidance) factorial design (Elliot & McGregor, 2001) or to one of the two control conditions. In a small room with the door closed, the computer guided the participants through the experiment. The participants read that they were going to participate in a research project on verbal skills measurement and that we were interested in how “users” feel about the test. Hence, they were asked to give honest answers to the questions midway through and after the test. They were told that there were two versions of the test (henceforth referred to as *Version 1* and *Version 2*), each consisting of three modules: Synonyms, Analogies, and Categories. An example of the module Synonyms is “Type the number of the word that has the same meaning as the word *provisions*: (1) advertisement; (2) clairvoyance; (3) furniture; (4) garbage; (5) stock.” In the module Analogies, the participants had to figure out how the first word related to the second word. Next, they had to find the word that had the same relationship to the third word. For example, for “*wolf–sheep, cat–*” choices were “(1) hedgehog; (2) kitten; (3) mouse; (4) tiger; (5) dog.” In the module Categories, the same six categories followed each pair of words. The participants had to type the number of the category that matched the pair of words. For example, for “*airplane–traveling*” choices were “(1) identical; (2) opposite; (3) kind; (4) part; (5) cause; (6) means.” Each module of *Version 1* was introduced using three examples of items. To increase task complexity, a 40-s time limit was set for each module (Utman, 1997). A countdown was shown on the bottom of the screen. Before each module, the participants could read on the screen that the module would start immediately after they hit the “Enter” key.

After completing *Version 1*, the participants responded to the measure of initial task interest. Next, they were reminded that they were going to work on *Version 2*, a parallel version of *Version 1* consisting of the same three modules. They were told that people tend to perform best on tests like these

when they have a specific goal. Then the goal assignment, that is, the experimental manipulation, took place. The purpose of each goal was (a) to perform better than the average total score in one’s norm group (performance approach); (b) not to perform worse than the average total score in one’s norm group (performance avoidance); (c) to perform better than one’s total score in *Version 1* (mastery approach); and (d) not to perform worse than one’s total score in *Version 1* (mastery avoidance). In the two performance goal conditions (a and b), a description of a norm group was provided (“same-sex others of about the same age and with the same level of education”). After the goal assignment, the participants were told that they would reach their goals if their total score in *Version 2* was 22 or more correct answers (22 appeared to be the median in pilots). Note that the participants were ignorant of their actual scores on *Version 1*. Before completing *Version 2*, participants were informed that they would receive their (own genuine) total scores after each module,⁵ and they had to type their assigned purpose goal and the score they had to attain. After completion of *Version 2*, they received their genuine total scores on *Version 2*, including the explicit information whether or not they had reached their goal. Finally, the participants completed the measure of subsequent task interest and the manipulation check and were debriefed.

In the first control condition (no goal condition), neither a target goal nor a purpose goal was imposed on the participants. In the second control condition (no purpose goal condition), a target goal (22 or more correct answers) but no purpose goal was imposed on the participants. As in the experimental conditions, in both control conditions, the participants received their genuine scores in *Version 2*.

At the end of the session, the four different goals were presented to the participants. The goal manipulation was checked by asking the participants to indicate which specific goal they were assigned in *Version 2*. In addition, the participants had to indicate on 5-point scales the extent to which they found their assigned goals attainable (*not at all* to *very*), realistic (*unrealistic* to *realistic*), and difficult (*easy* to *difficult*).

Actual performance is the total score on the three modules of each version of the verbal skills test developed for high school students by Van Dijk and Tellegen (1994). The three modules are Synonyms, Analogies, and Categories. Each module of the original test consists of 24 to 30 items, increasing in difficulty. To create two equally difficult parallel versions, each module was split up into two parts: The uneven numbers constitute *Version 1* and the even numbers *Version 2*.

Task interest was measured using a scale comprising four items: (a) “Did you enjoy doing *Version 1*?”; (b) “Did you take interest in doing *Version 1*?”; (c) “Are you interested in doing tests like this?”; and (d) “Did you feel pleasant while you were doing *Version 1*?” The presentation of the items was randomized. The response categories varied from 1 (*not at all*) to 5 (*very much*). To assess subsequent task interest, “*Version 1*” was replaced by “*Version 2*.” Items were averaged to create an index for initial task interest ($\alpha = .81$) and for subsequent task interest ($\alpha = .88$).

Results

Manipulation check. At the end of the session, the participants indicated which specific goal they had to pursue during *Version 2*. A chi-square test, comparing the observed frequencies of cases with the actual (or expected) frequencies, revealed that the goal manipulation was successful, $\chi^2(3, N = 118) = 3.91, ns$. A 2

⁵ For example, participants in the mastery–approach condition who attained a score of 8 in the Synonym module 1 of *Version 2* read the following after they completed this module: “In this module, the number of correct answers is 8. Your goal is to perform better than your total score in *Version 1*. To reach this goal, you have to achieve a total score of 22 or more correct answers in *Version 2*. So, in the next two modules, you still have to attain 14 points.”

(performance vs. mastery) \times 2 (approach vs. avoidance) multivariate analysis of variance (MANOVA) was conducted to test differences between experimental conditions with regard to the extent to which the participants found their assigned goals attainable, realistic, and difficult. At the multivariate level, neither main effects, $F(3, 112) = 1.00, ns$, and $F(3, 112) = .70, ns$, respectively, nor an interaction effect, $F(3, 112) = 1.25, ns$, were observed. Moreover, another MANOVA revealed that there were no differences in this respect between the four experimental conditions, on the one hand, and the no purpose goal control condition, on the other hand, $F(3, 138) = .81, ns$. Apparently, the no purpose goal and the different purpose goals were not perceived differently with regard to attainability, realism, and difficulty.

A chi-square test indicated that participants in both control conditions were equally successful in attaining the total score of 22 or more correct answers, $\chi^2(1, N = 47) = .56, ns$. In both control conditions, 45% attained this goal. Note that the participants in the no goal control condition were unaware of this. The participants in the four experimental conditions were equally successful in attaining this goal, $\chi^2(3, N = 118) = 4.40, ns$. Moreover, there were no differences in this respect between the two control conditions on the one hand and the four experimental conditions on the other hand, $\chi^2(1, N = 165) = .22, ns$. Across the four experimental conditions, 42% of the participants successfully attained a score of 22 or more correct answers.

Control conditions. First, it was confirmed that in the neutral purpose goal context, a positive link existed between initial task interest and performance. Hence, actual performance on Version 2 was hierarchically regressed on initial performance, initial task interest, condition (no goal vs. no purpose goal), and their interactions. The procedure proposed by Aiken and West (1991) was followed: The control conditions were entered as dummy variables (-1 vs. $+1$), and the continuous variable of initial task interest was centered. Obviously, there was a strong link between initial performance and subsequent performance—Step 1: $F(1, 45) = 39.92, p < .001$ —but Step 2 (main effects) was also significant, $F(1, 43) = 4.75, p < .01$. Specifically, there was a significant relationship ($\beta = .32, p < .01$) between initial task interest and actual performance in Version 2, with performance in Version 1 controlled for, whereas the main effect of (control) condition was not significant ($p > .45$). The final step (Step 3), that is, the interaction between condition and initial interest, was not significant, $F(1, 42) = .23, ns$. These results suggest that in a neutral purpose goal context, task interest leads to better performance.

Next, a 2 (condition: no goal vs. no purpose goal) \times 2 (goal attainment: success vs. failure) analysis of variance (ANOVA) with time (initial task interest and subsequent task interest) as a within-subjects factor was conducted. All between-subjects effects were nonsignificant: Condition \times Time, $F(1, 43) = .83, ns$; Goal Attainment \times Time, $F(1, 43) = .67, ns$; and Condition \times Goal Attainment \times Time, $F(1, 43) = .04, ns$. In contrast, the main effect of time was significant, $F(1, 43) = 10.15, p < .01$. That is, participants gained task interest regardless of (control) condition and goal attainment ($M_{\text{initial}} = 2.78, SD = 0.61$ vs. $M_{\text{subsequent}} = 3.04, SD = 0.66$).

Experimental conditions. In the experimental conditions, the same positive relationship between initial task interest and actual performance was expected only among individuals who had a mastery–approach goal (Hypothesis 1). Therefore, actual perfor-

mance in Version 2 was hierarchically regressed on the experimental manipulations (performance vs. mastery and approach vs. avoidance) and initial task interest. The covariate (actual performance in Version 1) was entered first (Step 1), followed by the main effects (Step 2), the two-way interactions (Step 3), and the three-way interaction (Step 4). Because the regression equations contain interactions, unstandardized regression weights are reported (Aiken & West, 1991). Only the expected interaction of the three independent variables on actual performance in Version 2 was significant ($b = -1.28, p < .01; R^2 = .53, R^2\Delta = .03$). Additional analyses were conducted to test the statistical significance of the simple slopes (Aiken & West, 1991). The results of the latter analyses, which are presented in Figure 1, support Hypothesis 1: Only among individuals who had a mastery–approach goal was initial task interest positively related to actual performance. Figure 1 also shows that individuals who pursued a mastery–avoidance goal even tended to perform worse when initial task interest was higher.

To test whether and which purpose goals actually undermined the relationship between prior task interest and actual performance, the four purpose goal conditions were compared with the control conditions in four separate analyses. In each analysis, actual performance on Version 2 was hierarchically regressed on initial performance, initial task interest, and condition (purpose goal vs. no purpose goal). With regard to the mastery–approach goal, the two-way interaction was not significant, $F(1, 71) = 0.11, ns$. The plot revealed that the mastery–approach slope (see Figure 1) and the slope observed in the control conditions were more or less identical. In contrast, significant two-way interactions were observed regarding the performance–approach goal, $F(1, 72) = 5.86, p < .05$; the performance–avoidance goal, $F(1, 72) = 3.92, p < .05$; and the mastery–avoidance goal, $F(1, 71) = 13.03, p < .001$. Apparently, the typical relationship between task interest and actual performance holds only for a congruent mastery–approach purpose goal.

To test Hypotheses 2 and 3, a 2 (performance vs. mastery) \times 2 (approach vs. avoidance) \times 2 (goal attainment: success vs. failure)

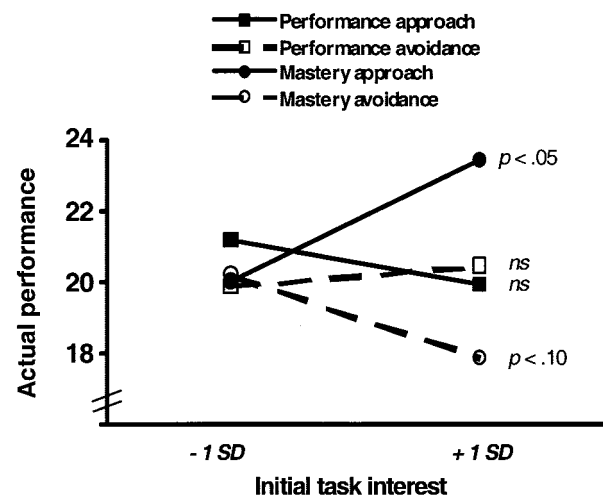


Figure 1. Actual performance in Version 2 as a function of initial task interest and the purpose goal assigned to the individual, controlling for actual performance in Version 1 (Study 1).

ANOVA was conducted, with time (initial task interest and subsequent task interest) as a within-subjects factor. No evidence was found that a mastery–approach goal enhanced subsequent task interest, Performance–Mastery \times Approach–Avoidance \times Time: $F(1, 110) = 0.44, ns$, so Hypothesis 2 was rejected. In contrast, Hypothesis 3 was supported, Goal Attainment \times Time: $F(1, 110) = 9.24, p < .01$. That is, goal attainment rather than failure to attain one’s goal was found to enhance subsequent task interest. Additional t tests indicated that task interest increased among successful participants ($M_{\text{initial}} = 2.80, SD = 0.65$ vs. $M_{\text{subsequent}} = 3.01, SD = 0.73$); $t(47) = 3.83, p < .001$, whereas among unsuccessful participants, no increase in task interest was observed ($M_{\text{initial}} = 2.79, SD = 0.81$ vs. $M_{\text{subsequent}} = 2.65, SD = 0.80$); $t(69) = 1.47, ns$. The ANOVA revealed no other significant effects ($ps > .10$).

Discussion

As expected, in a neutral purpose goal context (i.e., in both control conditions), individuals performed better when initial interest was higher (Ford, 1992; Lepper & Henderlong, 2000; Renninger, 2000; Ryan & La Guardia, 1999). The present research adds to previous findings by showing that incongruent purpose goals (i.e., performance goals and avoidance goals) undermine this positive effect of initial task interest on actual performance. That is, the typical relationship between initial task interest and actual performance held only for congruent mastery–approach purpose goals. Furthermore, in the neutral purpose goal context, participants gained task interest regardless of goal attainment. With a specific purpose goal, however, a similar gain in task interest was observed only when individuals attained their goal, regardless of the purpose for which they engaged in the task.

Study 2

Study 2 was similar to Study 1, with one crucial difference. In Study 2, purpose goals were personally adopted rather than assigned. Purpose goals may lead to different effects when they are assigned as opposed to when they are freely adopted (Barron & Harackiewicz, 2001; Harackiewicz & Sansone, 1991). However, as in Study 1, the basic assumption was that incongruent performance goals and avoidance goals, either adopted or assigned, may shift attention away from the aspects of the task individuals find initially interesting, which may lead to reduced involvement, less focus, and decreased persistence and, subsequently, to a decline in performance level (see Hypothesis 1).

An additional question addressed in Study 2 is the causal link between actual performance and goal choice. Recent correlational achievement goal research among college students suggests that adopted performance–approach goals enhance one’s performance level. Various studies demonstrated that personally adopted performance–approach goals and actual performance (such as exam performance, semester grade point average, and final grade), controlling for initial performance (such as high school academic performance or Scholastic Aptitude Test scores), are weakly but positively related (around .20; e.g., Barron & Harackiewicz, 2001; Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, & Elliot, 2002; Harackiewicz et al., 1997, 2000). In contrast, in experimen-

tal achievement goal research, the link between assigned performance–approach goals and actual performance does not seem to exist (Barron & Harackiewicz, 2001; Utman, 1997). An explanation for these apparently contradictory findings might be that high performance predicts the adoption of performance–approach goals rather than that performance–approach goals lead to better actual performance. High performers may adopt a performance–approach goal to create a more exciting and challenging situation (Sansone & Smith, 2000). In contrast, for the moderate performers and particularly for the low performers, a performance–approach goal is unattainable. When one’s standing on a particular dimension is objectively verifiable, people are more likely to be realistic in their aspirations and self-evaluations (Allison, Messick, & Goethals, 1989; Van Yperen, 1992). In the present study, the participants believed that they were going to complete a test that objectively measures one’s verbal skills. Hence, Hypothesis 4 states that the initial performance level is higher among individuals who adopt a performance–approach goal than among those who adopt other goals.

The three hypotheses tested in Study 1 were tested in Study 2 as well. However, in Study 2, a gain in task interest was not only expected among participants who adopted a mastery–approach goal (see Hypothesis 2), but also among their counterparts who preferred a performance–approach goal. As discussed earlier, the participants who preferred a performance–approach goal were expected to be relatively high in ability. A performance–approach goal may provide them the additional excitement and challenge of performing better than others, and this may be the basis for enhanced interest (Barron & Harackiewicz, 2001; Sansone & Smith, 2000). Accordingly, Hypothesis 2 was somewhat adjusted: An approach goal rather than an avoidance goal will enhance subsequent task interest.

Method

Participants. The participants ($N = 118$) were 13 (11%) students from professional schools and institutes in the Netherlands, primarily from Schools of Health (31%), Education (23%), and Economy (23%); and 105 (89%) students from a university in the Netherlands, divided among several departments, including the Departments of Social Sciences (37%), Arts (27%), Law (12%), Medicine (8%), and Management (8%). The participants were recruited during 1st-year lectures and were paid 5 Euros (approximately \$5 US) for their participation. The ages of the participants ranged from 18 to 24 years, and the mean age was 20.0 years ($SD = 1.3$). Men ($n = 38$) and women ($n = 80$) were equally divided across the personally adopted purpose goal conditions. Again, gender differences were explored, but there was no evidence of gender-related effects of the relationships identified.

Procedure. The procedure for Study 2 was the same as that followed in Study 1, with the only, but crucial, exception being that purpose goals were not assigned. The participants were asked to adopt a specific goal after completing the measure of initial task interest. They had to choose one of the same four purpose goals that were assigned in Study 1: (a) to perform better than the average total score in one’s norm group; (b) not to perform worse than the average total score in one’s norm group; (c) to perform better than one’s total score in Version 1; or (d) not to perform worse than one’s total score in Version 1. On the same screen, a description of a norm group was provided (i.e., “same-sex others of about the same age and with the same level of education”). As in Study 1, the participants were next told that they would reach their adopted goals if they had a total score in Version 2 of 22 or more correct answers.

Measures. The same task and measures were used as in Study 1. In Study 2, Cronbach's alpha was .85 for initial task interest and .88 for subsequent task interest.

Results

Descriptive data. The observed percentages of goal choice deviated from an equal division across the four goals, $\chi^2(3, N = 118) = 60.10, p < .001$. The mastery–approach goal was clearly the most preferred goal (54%), and the mastery–avoidance goal was the least preferred (6%). In between were the performance–approach goal (19%) and the performance–avoidance goal (21%). At the end of the session, almost all participants indicated correctly their adopted goals. The chi-square test, comparing the observed frequencies of cases on this measure with the actual (or expected) frequencies, was not significant, $\chi^2(3, N = 118) = .06, ns$.

A 2 (performance vs. mastery) \times 2 (approach vs. avoidance) MANOVA was conducted to test differences between the four goals with regard to the extent to which the participants found their personally adopted goals attainable, realistic, and difficult. At the multivariate level, neither main effects, $F(3, 112) = 1.00, ns$, and $F(3, 112) = 1.71, ns$, respectively, nor an interaction effect, $F(3, 112) = .80, ns$, were observed. As in Study 1, the different goal frames or purposes were not perceived differently with regard to attainability, realism, and difficulty.

Next, a 2 (performance vs. mastery) \times 2 (approach vs. avoidance) univariate ANOVA with initial performance as dependent variable was conducted to test Hypothesis 4. This analysis revealed no main effects, $F(1, 114) = .69, ns$, and $F(1, 114) = .35, ns$, respectively, but the interaction was significant, $F(1, 114) = 5.96, p < .05$ (see Figure 2). An additional Tukey test provided support for Hypothesis 4: The initial performance level was higher among individuals who adopted a performance–approach goal than among their counterparts who adopted a performance–avoidance goal ($p < .05$) or a mastery–approach goal ($p < .01$), albeit not significantly higher than among those who adopted a mastery–avoidance goal ($p > .40$). Other pairwise comparisons revealed no significant differences in means. These results suggest that high performers had a stronger preference for a performance–approach goal than for other types of goals, particularly a performance–avoidance goal and a mastery–approach goal.

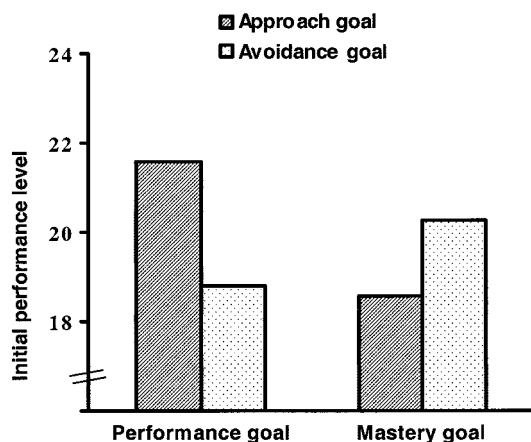


Figure 2. The link between goal choice and initial performance (Study 2).

The same ANOVA with initial task interest as the dependent variable yielded neither main effects, $F(1, 114) = 2.64, ns$, and $F(1, 114) = 2.00, ns$, respectively, nor an interaction effect, $F(1, 114) = 1.23, ns$. Thus, participants who adopted different purpose goals did not differ on initial task interest.

To test the first hypothesis, actual performance in Version 2 was hierarchically regressed on goal choice (performance or mastery, and approach or avoidance) and initial task interest. The covariate (actual performance on Version 1) was entered first (Step 1), followed by the main effects (Step 2), the two-way interactions (Step 3), and the three-way interaction (Step 4).⁶ As in Study 1, only the expected three-way interaction was significant ($b = -.99, p < .05; R^2 = .46, R^2\Delta = .03$). The pattern of this interaction, displayed in Figure 3, is similar to the pattern observed in Study 1 (see Figure 1), and supports Hypothesis 1: Only among individuals who had a mastery–approach goal did a positive relationship exist between initial task interest and actual performance. As in Study 1, individuals who pursued a mastery–avoidance goal tended to perform worse when initial task interest was higher, although this latter slope was not significant because of the lack of statistical power (only 6% preferred a mastery–avoidance goal).

Because there was a link between initial performance and goal choice (see Figure 2), similar differences in goal attainment were observed between the four goal conditions, although these differences barely approached significance, $\chi^2(3, N = 118) = 7.29, p < .10$. Overall, 48% of the participants reached the score of 22 or more correct answers.

Next, a 2 (performance vs. mastery) \times 2 (approach vs. avoidance) \times 2 (goal attainment: success vs. failure) ANOVA with time (initial task interest and subsequent task interest) as the within-subjects factor was conducted to test Hypotheses 2 and 3. As in Study 1, Hypothesis 2 was rejected; Approach–Avoidance \times Time: $F(1, 110) = 1.34, ns$. That is, no evidence was found that approach goals rather than avoidance goals enhanced subsequent task interest. However, the expected effect of Goal Attainment \times Time was again found, $F(1, 110) = 3.09, p < .05$. As in Study 1, additional t tests revealed that in contrast to unsuccessful participants ($M_{\text{initial}} = 2.57, SD = 0.87$ vs. $M_{\text{subsequent}} = 2.67, SD = 0.89$), $t(60) = .98, ns$, successful participants gained task interest ($M_{\text{initial}} = 2.99, SD = 0.73$ vs. $M_{\text{subsequent}} = 3.28, SD = 0.71$); $t(56) = 3.38, p < .001$. Thus, Hypothesis 3 was also supported in Study 2, indicating that goal attainment rather than failure to attain

⁶ Note that the observed percentages of goal choice deviated from an unequal division across the four goals, so that the 2 (performance vs. mastery) \times 2 (approach vs. avoidance) factorial design in Study 2 was unbalanced. However, the Type III sums-of-squares method (the default option in MANOVA and general linear modeling) calculates the sums of squares of an effect in the design, because the sums-of-squares result is adjusted for any other effects that do not contain it and is orthogonal to effects (if any) that do contain it. The Type III sums of squares has one major advantage in that it is invariant with respect to the cell frequencies as long as the general form of estimability remains constant. Hence, this type of sums of squares is often considered useful for an unbalanced model with no missing cells. In a factorial design with no missing cells, this method is equivalent to the Yates's weighted-squares-of-means technique. The Type III sums-of-squares method is commonly used for any balanced or unbalanced model with no empty cells (see SPSS, Version 11.5, help menu, or Hays, 1994).

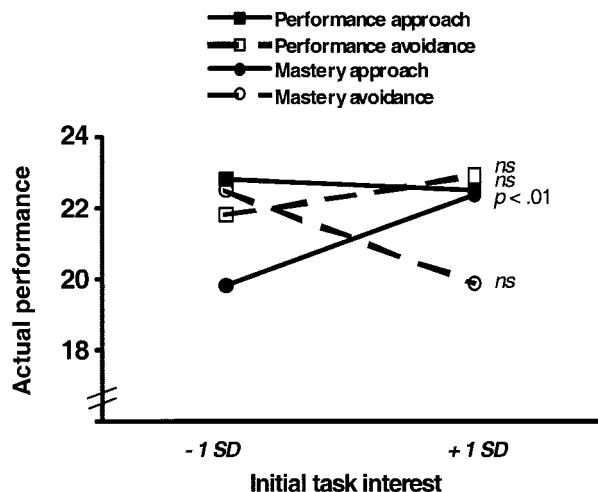


Figure 3. Actual performance in Version 2 as a function of initial task interest and the purpose goal adopted by the individual, controlling for actual performance in Version 1 (Study 1).

one's goal enhances subsequent task interest. The ANOVA revealed no other significant effects ($ps > .15$).

General Discussion

The present study was conducted to examine whether and which purpose goals, either assigned (Study 1) or adopted (Study 2), undermine the positive effect of prior task interest on actual performance. First, however, it was confirmed that in a neutral purpose goal context (i.e., in the control conditions; see Study 1), a positive relationship exists between initial task interest and performance (cf. Ford, 1992; Lepper & Henderlong, 2000; Renninger, 2000; Ryan & La Guardia, 1999). By controlling for initial performance, the results cautiously suggest that task interest may cause better performance. Indeed, task interest is associated with focused attention, cognitive functioning, and persistence (Hidi, 2000), all of which are likely to enhance performance (Ford, 1992; Locke & Latham, 1990). In addition, the observed link between goal attainment and a gain in task interest indicates that people become more interested when they learn that they are good at a task (Bandura, 1982; Deci & Ryan, 1985; Lepper & Henderlong, 2000). Apparently, task interest and actual performance are mutually enhancing.

To examine the moderating effect of achievement-related purpose goals, a full 2×2 design of the performance–mastery and approach–avoidance distinctions was used (Elliot & McGregor, 2001), which is new in experimental achievement goal research. It was hypothesized that in a purpose goal context, the key determinant of actual performance was the congruence between individuals' initial task interest and their purpose goals. Task interest and mastery–approach goals are congruent because they direct the individual to the same end. Specifically, in a mastery–approach goal context, the initially interested individual remains focused on personal improvement, skill development, the interesting aspects of the task, and the positive and desirable outcomes. Indeed, the link between initial task interest and actual performance was found

only among individuals who had a mastery–approach goal, either assigned or adopted.

However, similar results were obtained in a neutral purpose goal context (i.e., in the control conditions). Apparently, a congruent mastery–approach goal does not strengthen the link between task interest and actual performance above the baseline level. Rather, incongruent purpose goals may shift attention away from the interesting aspects of the task and, consequently, undermine the positive effect of task interest on performance. An important mediational question for future research is whether, in the case of performance goals, the primary distractors are cognitive interferences about how one's ability level compares with the ability levels of others over whom one lacks personal control. Similarly, avoidance goals may distract because these goals focus the individual on the possibility of failure, producing threat appraisals, anxiety, and low competence expectancies, processes that tend to be detrimental to actual performance (Elliot, 1999; Elliot & Covington, 2001; Elliot & McGregor, 2001; Pintrich, 2000b).

An unexpected result was that a mastery–approach goal did not enhance subsequent task interest (neither were initially interested participants more likely to adopt a mastery–approach goal). The reason for the positive associations between mastery goal concepts and task interest observed in previous, primarily correlational achievement goal research may be differences in conceptualizations of the mastery–approach goal construct. In the present study, this concept was reduced to its conceptual core, that is, it was conceptualized in terms of performing better relative to one's own previous performance (cf. Elliot, 1999; Harwood, Hardy, & Swain, 2000; Nicholls, 1984). In contrast, multi-item measures of the mastery–approach goal construct typically comprise (several) additional process-focused subdimensions that are apparently associated with task interest (cf. Hidi, 2000), such as the willingness to exert effort (Duda, 2001; Nicholls, Patashnick, & Nolen, 1985; Van Yperen & Duda, 1999), the preference for challenging tasks (VandeWalle, 1997), the desire to understand and solve problems (Nicholls et al., 1985), and the wish to learn as much as possible (Elliot & Church, 1997; Harackiewicz et al., 1997). Note that a lack of gain in task interest cannot be explained by the assignment of the target goal of 22 or more correct answers. In the no purpose goal control condition, in which the participants were assigned the same target goal, participants did gain task interest. Only in a purpose goal context in which the target was framed in terms of self-referenced or other-referenced comparisons, either approach or avoidance oriented, no interest-enhancing effect was observed.

When individuals try to attain a specific performance goal, the discrepancy between their current performances and the other-referenced target typically ranges from extremely great improvement requirements for the very low performers to negative performance changes for the extremely high performers (Wright, 1992). In contrast, when individuals try to attain a self-referenced target goal, goal difficulty is more or less similar for all individuals. Consequently, performance goals usually result in greater overall variability in goal difficulty than do mastery goals. A subtle feature of the current experimental design was the operationalization of purpose goals in which the numerical criterion or target was held constant across conditions (cf. Harackiewicz & Elliot, 1998). Hence, the results are not an artifact of the different levels of variance in goal difficulty across conditions. Moreover, in the present research, the participants did not perceive the different

goals (including the no purpose goal in the second control condition) differently with regard to attainability, realism, and difficulty. Therefore, it can be assumed that the moderating effects of the purpose goals stemmed purely from the way in which the goals were framed.

Incorporating a mastery–avoidance goal in the experimental design is another critical addition to prior work. Prior work that relied on the dichotomous operationalization of achievement goals portrayed the pursuit of mastery goals as the ideal form of competence-based regulation and performance goals as being harmful to the individual (e.g., Ames, 1992; Duda, 2001; Nicholls, 1984). The present research suggests that a mastery–approach goal, which was preferred by the majority of the participants (54%), may, indeed, be beneficial for some individuals (i.e., the initially interested) in some respects (e.g., with regard to improving one’s performance). But the other mastery goal, that is, a mastery–avoidance goal, which was preferred by only 6% of the participants, may be more harmful to initially interested individuals than a performance goal (either approach or avoidance). The first results on the link between adopted mastery–avoidance goals and actual performance presented by Elliot and McGregor (2001) suggested that no links exist between adopted mastery–avoidance goals and performance indices, such as undergraduates’ deep-processing study strategies and exam performance. Elliot and McGregor (2001) suggested that the mastery and the avoidance component may neutralize each other. However, the present results cautiously suggest that among individuals who adopt a mastery–avoidance goal, actual performance may deteriorate when initial task interest is higher. A mastery–avoidance goal may possibly lead to more evaluative anxiety and distract attention from the task more than other purpose goals do, particularly when the task is perceived as interesting and important by the individual (Van Yperen, 1992). An explanation may be that relative to the other purpose goals, a mastery–avoidance goal leaves less “cognitive space” for self-serving attributions. Specifically, in the case of the current approach goals, not improving or not performing better than others may be perceived as performing equally well, whereas failure to reach the current mastery–avoidance goal unequivocally means performing worse than one’s unambiguous, specific standard, that is, one’s own previous performance on the same task. Furthermore, in the case of performance goals, there is room to attribute one’s failure to the ambiguity of, or a misfit with, the norm group (e.g., who precisely are the members of this norm group? the level of this norm group is clearly too high), or to the nature of the task (e.g., I am not good at this particular task relative to others).

Recent correlational goal achievement research, in which performance–approach goals were personally adopted by the individuals, has suggested that these goals may lead to better performance (e.g., Barron & Harackiewicz, 2001; Elliot & Church, 1997; Harackiewicz et al., 1997, 2000). For example, Harackiewicz et al. (1997) suggested that students’ adoption of performance goals at the beginning of the semester (assessed as performance–approach goals) can lead to higher final grades assigned by instructors according to normative curves. However, in the achievement goal literature, there is lively debate regarding the conditions under which performance–approach goals are beneficial for the individual (e.g., Barron & Harackiewicz, 2001; Duda, 2001; Elliot & Church, 1997; Elliot & McGregor, 1999; Harackiewicz, Barron, & Elliot, 1998; Harackiewicz, Barron, Pintrich, Elliot, & Thrash,

2002; Harwood et al., 2000; Kaplan & Middleton, 2002; Linnenbrink & Pintrich, 2000; Midgley, Kaplan, & Middleton, 2001; Rawthorne & Elliot, 1999; Senko & Harackiewicz, 2002; Van Yperen, in press; Van Yperen & Janssen, 2002). The present research contributes to this debate by emphasizing that the adoption of a performance–approach goal may be the result rather than the cause of the individual’s greater performance. Apparently, much research must be done to improve understanding of the causal link between performance–approach goals and actual performance, including the conditions under which this link may exist (cf. Harackiewicz, Barron, Pintrich, et al., 2002).

In a recent study by Barron and Harackiewicz (2001), in which they tested multiple goal models, purpose goal effects varied as a function of their origin (assigned vs. adopted). In their study, assigned goals, provided by an audiotape, were categorical, whereas adopted goals were measured as continuous variables with three-item scales. In contrast, in the present study, in which purpose goals only varied in terms of their origin, the results suggest that it is possible to induce a particular goal context with the same effect as personally adopted purpose goals. A limitation of the present research methodology, however, is the ignorance of the actual complexity of achievement dynamics. The aim was to identify the moderating effects of separate achievement-related purpose goals, but it may be best to encourage initially interested individuals to adopt mastery goals along with performance goals, because these are both approach oriented (Barron & Harackiewicz, 2001; D. Butler & Winne, 1995; Carver & Scheier, 1998; Pintrich, 2000a; Pintrich & Garcia, 1991; Sansone & Smith, 2000; Wentzel, 1991). For example, in a recent study, Van Yperen and Janssen (2002) demonstrated that in a highly demanding work situation, a decline in job satisfaction among employees high on performance–approach orientation did not occur when mastery–approach orientation was simultaneously high.

A remarkable finding in the present research is that there was no difference in actual performance between the two control conditions, that is, between the no goal and the target goal, no purpose goal conditions. A core aspect of the goal-setting theory is that specific and difficult target goals lead to a higher levels of performance than vague goals (“do your best”) or no goals (Locke & Latham, 1990). However, one should first recognize that if individuals literally had no goals at all, they would do nothing. Thus, when goals are neither assigned nor explicitly self-set, the no goal condition often represents an implicit do-your-best condition (Locke & Latham, 1990). Second, research has shown that individuals who just “do their best” do not necessarily perform worse than their counterparts who try to reach a specific and difficult target goal. Particularly on a (moderately) complex task where participants lack the requisite abilities or knowledge to perform it, individuals may be better off with a do-your-best goal (e.g., Earley, Connolly, & Ekegren, 1989; Kanfer & Ackerman, 1989; Seijts & Latham, 2001; Winters & Latham, 1996). Thirdly, Locke and Latham (1990) explained the effects of goals on performance by three mechanisms that are primarily motivational: (a) Goals regulate the intensity of effort the individual expends on a task, (b) goals lead people to persist in their activities, and (c) goals direct the individual toward goal-relevant activities and away from goal-irrelevant ones. Intensity, persistence, and direction are exactly the characteristics of people who are high on interest in the activity or task at hand (Hidi, 2000). In the current setting, a target goal may

have had little or no additional value in terms of intensity, persistence, and direction for initially interested participants.

Because the participants worked on a real-life test under time pressure, receiving ongoing and accurate performance information, the setting was quite realistic (which was confirmed by respondents afterwards), even though the participants knew that there were no consequences in terms of grades, jobs, or promotions. For the present samples (college students), who had to complete the verbal skills test (actually developed for high school students) under time pressure, performance was certainly a function of cognitive or verbal ability but also of effort, focus, and alertness. A strict requirement the task had to comply with was that there was a possibility for performance improvement for all participants, including the high performers. Several pilots as well as the present results indicated that this requirement was met. Moreover, the participants did the task only twice, so that ceiling effects were unlikely to occur. Taken together, the current experimental setting may represent a typical test situation such as a school exam, a personnel selection test, or an assessment exercise. However, to actually test the ecological validity of the present findings, replication in various samples and applied contexts is necessary.

In conclusion, the present findings suggest that purpose goals may undermine the positive effect of prior task interest on actual performance. A gain in task interest was observed only when the participants attained their purpose goals, regardless of the purposes for which they engaged in the task. In the current experimental context, having a particular purpose goal led, at best, to outcomes similar to having no goal at all. Many areas in life, however, including work, sports, and education, tend to be governed by competition and normative evaluation. The present research suggests that such a performance goal context may undermine the link between initial task interest and actual performance. Hence, for future research, the challenge is to acquire a more precise understanding of how (combinations of) purpose goals can help to maintain and enhance task interest and improve actual performance in achievement settings in which normative evaluation is apparent and even necessary.

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