Self and Identity

Understanding Positive Attitudes toward Helping Peers: The Role of Mastery Goals and Academic Self-Efficacy

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The present research was designed to document the relationship between mastery and performance goals and attitudes toward helping others, and to test the mediating role of self-efficacy. Two experiments (Studies 1 and 2) showed that students with mastery goals hold stronger positive attitudes toward helping peers, relative to students with performance goals. Furthermore, a field study (Study 3) indicated that students' mastery goals were positively related to holding positive attitudes toward helping fellow students, whereas performance goals were not. Studies 2 and 3 indicated that this could be explained by the intra-individual process of academic self-efficacy. Finally, it was shown that a negative relationship existed between performance goals and helping peers only for individuals with relatively weak mastery goals.

Keywords: Mastery goals; Performance goals; Academic self-efficacy; Helpful behavior; Cooperative learning.

In contemporary educational systems, collaborative learning is considered a key mechanism to promote students' success. Indeed, the capacity and willingness to work together instead of alone on academic tasks may importantly contribute to the attainment of academic goals (e.g., Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000; Darnon, Buchs, & Desbar, 2012; Johnson, 1981; Vygotsky, 1978). Recent research shows that specific types of achievement motivation may have profound effects on such constructive social processes (for reviews see Darnon, Dompnier, & Poortvliet, 2012; Poortvliet & Darnon, 2010). However, research devoted to the question of how achievement goals particularly affect help-giving between students is lacking. Furthermore, to date little is known about the intra-individual processes that may underlie the effects of achievement motivation on prosocial behavior between peers in educational contexts. One of the mechanisms that may explain positive attitudes toward helping others is self-efficacy, one's beliefs in one's capability to execute the right course of action to reach one's goals (Bandura, 1977, 1997), because these beliefs may energize students to engage in adaptive learning strategies such as collaborative learning (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). The present research aims to address

this understudied issue by proposing and demonstrating that effects of achievement goals on academic help-giving may run via academic self-efficacy.

Achievement Goals and Help-Giving

Achievement motivation is a topic that has received much attention in educational research during the last 30 years. Within this domain, one of the dominant theoretical frameworks is the achievement goal approach (for a review, see Elliot, 2005). Achievement goals reflect the aim of an individual's achievement pursuits (Harackiewicz & Sansone, 1991) and may be defined as constructs that help to elucidate how individuals perceive, interpret, and react to achievement situations. In this literature, two goals have by far received the most attention: *Mastery goals* and *performance goals*.[1] Mastery goals involve the aim of improving one's own performance, whereas performance goals reflect the pursuit of outperforming others (Dweck, 1986). Students who strive for mastery goals compare their present performance predominantly with their previous performance and thus develop a self-referenced focus in achievement situations. In contrast, students with performance goals tend to compare their performances with those of others to monitor progress toward their desired goal, thereby developing an other-referenced focus (Nicholls, 1984).

A particularly striking characteristic of most academic learning situations is that students are typically in the presence of peers. Students' individual achievement goals therefore also have important *social* effects. As exchange partners are social comparison targets as well as potential sources of valuable information (Darnon, Butera, & Harackiewicz, 2007), individuals with mastery goals and individuals with performance goals adopt differing perspectives on exchanges with others (Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007). Indeed, achievement goals not only have effects on individual outcomes such as task interest (e.g., Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000) and performance (e.g., Hulleman, Schrager, Bodmann, & Harackiewicz, 2010), but may also strongly affect the social dynamics tied to achievement situations. For example, it has been shown that achievement goals predict differences in regulation of task-related conflicts: Mastery goals predict epistemic conflict regulation, a constructive form of regulation (e.g., trying to understand different viewpoints), whereas performance goals predict relational conflict regulation, a more competitive form of regulation (e.g., trying to demonstrate one is right and others are wrong; Darnon, Muller, Schrager, Pannuzzo, & Butera, 2006, see also Darnon, Doll, & Butera, 2007). In the same vein, in a collaborative setting, mastery goal inductions favor elaborated problem-solving discussion (Harris, Yuill, & Luckin, 2008) and enhance low-achieving students' level of constructive activity and learning (Gabriele, 2007) as compared to performance goal instructions. Mastery goals have also been shown to correlate positively with the inclination to help others, to cooperate, and to share knowledge (Cheung, Ma, & Shek, 1998). Performance goals are not related to these behaviors. On the contrary, performance goals may lead to interpersonal behaviors that are targeted at harming exchange partners' task-performance (Poortvliet, 2012; Poortvliet, Anseel, Janssen, Van Yperen, & Van de Vliert, 2012). Another line of research has shown that mastery goals lead to more helpful information sharing, and being less suspicious toward information exchange partners, compared to performance goals (Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007, 2009). Related investigations in work settings have shown that, unlike performance goals, mastery goals are associated with backing up behavior, the willingness to help team members who are apparently failing to perform well by offering resources and effort (Porter, 2005), and also with the development of high-quality exchange relationships between colleagues (Poortvliet & Giebels, 2012).

These results are consistent with research showing that personal mastery goals are positively linked to help-seeking, whereas performance goals are either not related or negatively related to help-seeking (Karabenick, 2003; Middleton & Midgley, 1997; Ryan & Pintrich, 1997). The perception of the classroom climate as emphasizing mastery goals versus performance goals raises similar results (Karabenick, 2004). In experimental research, help-seeking is also more frequent and more efficient in a context favoring mastery goals than in contexts favoring performance goals (Butler & Neuman, 1995; Ryan, Pintrich, & Midgley, 2001). However, and also quite surprisingly, little is known about the effects of achievement goals on help-*giving* in academic contexts. What makes goals related to help-seeking is the fact that goals change the perception one has of others and thus, the representation of the helping behavior in itself. Moreover, in a competitive (i.e., performance goals) environment, helping others, or receiving help from others is not seen as an appropriate behavior since it does not allow group members to see what each person is able to do by him or herself. These common reasons lead into thinking that goals should affect both help-seeking (the existing literature) and help-giving (the object of the present research).

One of the aims of the present studies is to fill this void by testing the expectation that mastery goals are more strongly related to help-giving that performance goals. Especially because educational environments are, formally or informally, contexts in which a high degree of interdependence exists (e.g., Summers, Beretvas, Svinicki, & Gorin, 2005), this implies that students may want to enhance social relationships with peers in order to achieve their own goals. Hence, social exchanges with peers serve as an important means by which mastery-driven students can reach their individual goal of self-improvement. Mastery goal individuals may therefore perceive positive interdependence with others (Deutsch, 1949; Johnson & Johnson, 1989). Consequently, the positive interdependence associated with mastery goals can be expected to enhance an individual's willingness to help peers.

In contrast, individuals with performance goals are negatively interdependent with peers because they only reach their goal if they outperform others. Such a negative interdependence will likely lead to an unwillingness to coordinate efforts with potential peers and also to an unwillingness to be influenced by exchange (cf. Study 2 in Poortvliet & Giebels, 2012). Sharing valuable information by helping others will work against goal attainment of persons with performance goals. Therefore, we expect that performance goals are negatively related to help-giving.

Self-efficacy as an Underlying Mechanism

Thus, trying to improve one's own previous performance (i.e., pursuing mastery goals) versus trying to outperform others (i.e., pursuing performance goals) may importantly affect how people behave in social situations in terms of help-giving. However, to date, the underlying process that may explain *how* different achievement goals may give rise to different interpersonal dynamics has remained largely unexplored. In this paper, it is proposed that students' level of academic self-efficacy, defined as their self-beliefs of being capable of exercising control over their desired academic achievements (cf. Bandura et al., 1996), may explain differences in help-giving. In the next section, we first describe how different achievement goals are linked to self-efficacy. Following that, we outline our expectations concerning how self-efficacy explains the relationship between achievement goals and help-giving.

Mastery goals are positively connected to intrinsic motivation, challenge seeking, persistence, and increasing effort when impediments are encountered. In contrast, performance goals are associated with extrinsic motivation, the belief that abilities are

fixed, and withdrawal when setbacks occur (Dweck, 1986; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Hong, Chiu, Dweck, Lin, & Wan, 1999; Miller, Greene, Montalvo, Ravindran, & Nichols, 1996; Nicholls, 1984). In particular, having the belief that abilities are changeable rather than fixed produces higher levels of control for mastery goals than for performance goals (Dweck & Leggett, 1988) and can produce increases in effort in order to overcome constraints (Nussbaum & Dweck, 2008). Moreover, unlike mastery goals, the attainment of performance goals is importantly dependent on the unpredictable task performance of other actors, and, given such low predictability and goal ambiguity, performance goals may lead to a lower perception of control (Van Yperen & Hagedoorn, 2008) and confidence in academic achievement (Covington & Omelich, 1984), relative to mastery goals. Indeed, earlier research has established that mastery goals have a moderate to strong positive relation with perceptions of self-efficacy, whereas performance goals have been found to be either negatively related to self-efficacy (Phillips & Gully, 1997) or not related to self-efficacy (e.g., Middleton & Midgley, 1997; Murdock, Hale, & Weber, 2001; Roeser, Midgley, & Urdan, 1996; Shim & Ryan, 2005). Other research has shown that performance goals have a weaker relationship with self-efficacy than mastery goals (Bandalos, Finney, & Geske, 2003; Kaplan, Gheen, & Midgley, 2002; Shell & Husman, 2008; Wolters, 2004; for an exception, see Skaalvik, 1997).

In this paper, it is proposed that self-efficacy may act as a psychological mechanism that can explain helpfulness among students, stemming from distinct types of achievement goals. Research has indicated that individuals with mastery goals evaluate their goals as being less hard to attain compared to individuals with performance goals (Senko & Harackiewicz, 2005), because goal fulfillment relies on different standards of success: Self-referent (for mastery goals, self-improvement) versus other-referent (for performance goals outperforming others; Nicholls, 1979). Specifically, as encountering obstacles and complexities is natural in the process of achievement strivings, for performance-goal individuals such occurrences are threatening because they impede them from demonstrating superior competence over others. For mastery goal individuals, achievement situations will be appraised significantly differently because occasional achievement setbacks signal opportunities to develop mastery and function as positive challenges (Stout & Dasgupta, 2013). Therefore, we expect that mastery goals are positively related to self-efficacy, whereas performance goals are not, and we expect that mastery goals will lead to higher levels of self-efficacy than performance goals. Academic self-efficacy fosters interpersonal skills that are conducive to learning (Bandura et al., 1996) and can augment the amount of effort that students are willing to invest in cooperating with peers who are also engaged in task performance, most notably in assisting them by giving help. Therefore, we expect that mastery goals are positively related to help-giving, whereas performance goals are not, and that self-efficacy can explain the relationship between mastery goals and help-giving.

This reasoning is in line with extant research on self-efficacy. According to Bandura's social cognitive theory (1977, 1997), a person's sense of self-efficacy determines whether adaptive behaviors will be initiated that, in turn, may lead to desired outcomes (see also Ajzen, 1985). These courses of action include not only adaptive intra-individual processes, but also constructive relationship building between peers that promotes academic achievement (Bandura et al., 1996). Moreover, having confidence in one's abilities leads to greater prosocial inclinations (Bandura, 1993; Smith, Walker, Fields, Brookins, & Seay, 1999). More relevant to the current research is the finding that self-efficacy has a positive relationship with helping behaviors that are instrumental in the task performance of others. For example, Le Blanc and colleagues considered efficacy beliefs as a personal resource that people could invest in their collaboration with co-workers in order to gain additional

resources in return (Le Blanc, Schaufeli, Salanova, Llorens, & Nap, 2010). In another study, self-efficacy predicted willingness to help colleagues and the organization beyond a person's formal job description (Walumbwa, Hartnell, & Oke, 2010). Finally, a study by Bandura and associates showed that academic self-efficacy predicted helpful behavior between middle-school students (Bandura et al., 1996).

The Present Research

In this paper, we present three studies designed to investigate the relationship between achievement goals and positive attitudes toward helping other students. To improve the generalizability of findings, three methodologically different studies were designed. In Study 1, it was experimentally investigated whether individuals asked to endorse mastery versus performance goals differ with regard to their attitudes toward helping others in an academic context. Using another experimental setup, Study 2 tested whether such differences can be explained by levels of academic self-efficacy. In Study 3, a survey investigated whether positive attitudes toward helping peers are related to undergraduate students' self-set achievement goals, and levels of academic self-efficacy were assessed to test whether this motivational process could explain the relationship between achievement goals and help-giving.

Hence, the studies diverge with regard to the operationalization of achievement goals. In Studies 1 and 2, goals were assigned, whereas in Study 3 naturally occurring goals were assessed. In the achievement-goal literature, the majority of studies have measured achievement goals, but manipulation of achievement goals has become increasingly popular in research. These studies generally show that goal manipulations produce similar results to goal measurements (e.g., Barron & Harackiewicz, 2001; Darnon, Dompnier, Gilliéron, & Butera, 2010; Harris et al., 2008; Poortvliet & Giebels, 2012; Senko, Hulleman, & Harackiewicz, 2011), and we do not anticipate differences across a context in which goals are externally imposed or personally endorsed. We chose to adopt both methods because these are complementary for important reasons. Lab research offers the opportunity to study causal effects of achievement goals, whereas correlational designs enable us to study the relationship between freely adopted goals and other variables of interest. Also, both methods are congruent with the fact that goals may be adopted as a result of a specific achievement-context characteristic, whereas individuals also bring their own goal dispositions into achievement situations.

Study 1

Method

Participants and Design

Seventy-eight undergraduate university students (28.2% male[2]; $M_{age} = 20.21$, $SD_{age} = 1.94$) participated in the study and received partial course credit for their participation. Participants were randomly assigned to one of the two achievement-goal conditions (mastery goal versus performance goal). The design was balanced, with 39 participants taking part in each condition.

Procedure

After receiving differing achievement-goal instructions, participants were asked to complete a help-giving questionnaire developed for this investigation. To that purpose, we used the self-presentation paradigm (Jellison & Green, 1981; Hough, Eaton, Dunnette,

Kamp, & McCloy, 1990; see also Darnon, Dompnier, Delmas, Pulfrey, & Butera, 2009; Dompnier, Darnon, Delmas, & Butera, 2008; Dompnier, Darnon, & Butera, 2009, for a use of the self-presentation paradigm in goal research). That is, the participants were asked to react to the statements in the questionnaire by presenting themselves as pursuing either a mastery goal or a performance goal. In the mastery goal condition, the instructions were as follows:

> Please imagine that you are a student who is very passionate about learning. You really want to master your studies and therefore you have the goal of improving and expanding your knowledge and competencies. You feel best about yourself when you manage to improve your performance. Please respond to the following questions by imagining that you are a student who strives for self-improvement.

In the performance goal condition, the instructions were the following:

> Please imagine that you are a student who is very competitive when it comes to learning. You really want to be the best student in your class and therefore you strive for better results than your fellow students. You feel best about yourself when you manage to perform better than your peers. Please respond to the following questions by imagining that you are a student who strives to perform better than other students.

Measures

Help-giving.   To measure attitudes toward helping fellow students, a 10-item scale was constructed. Inspired by existing questionnaires used in organizational settings (Settoon & Mossholder, 2002; Williams & Anderson, 1991), the items on this scale measured attitudes toward help-giving behavior (e.g., "giving constructive feedback on a work in progress by a fellow student", "offering to spend extra time to answer questions from a fellow student shortly before an exam", and "encouraging a fellow student who has encountered obstacles in his/her studies" (1 = *very unlikely*, 7 = *very likely*). Cronbach's alpha was .94. A principal component analysis showed that all 10 items loaded on a single factor, which accounted for 67.2% of the variance (with individual item loadings exceeding .53).

Results

Help-giving

An ANOVA revealed a highly statistically significant effect of goal manipulation on the help-giving scale, $F(1, 76) = 61.39$, $p < .001$, $\eta_p^2 = .45$. As expected, in the mastery goal condition, participants indicated that they had more positive attitudes toward helping others ($M = 4.93$, $SD = 1.10$) than participants in the performance goal condition ($M = 3.07$, $SD = 1.00$).

Study 2

In line with our prediction, the results of Study 1 indicated that participants who were given mastery goal rather than performance goal instructions reported stronger positive attitudes toward helping others. The aim of Study 2 was to extend these results by tapping the expected mediating role of self-efficacy on the relationship between achievement goals and help-giving, and thus test the main research question of this paper. Specifically, we proposed that mastery goals lead to higher levels of self-efficacy experienced in an interpersonal achievement situation, relative to performance goals. Furthermore, we

hypothesized that such higher levels of self-efficacy could explain why mastery goal individuals engage more in help-giving.

In Study 2, participants were asked to read a scenario in which they either had a mastery goal or a performance goal. In line with Covington and Omelich (1984), in the mastery goal condition participants were informed that students could reach a desired outcome (getting a PhD position) as long as they met self-referenced criteria (developing themselves), whereas in the performance goal condition this outcome depended upon other-referenced criteria (outperforming others). Finally, measures of self-efficacy and help-giving were assessed in order to test the mediation expectation.

Method

Participants and Design
One hundred and nineteen undergraduate university students (26.9% male; $M_{age} = 21.56$, $SD_{age} = 2.98$) participated in the study. Participants were randomly assigned to one of the two achievement goal conditions (mastery goal versus performance goal).

Procedure
Participants were asked to read a scenario about doing an internship at the university, and the scenarios in the two conditions varied with regard to the explicit achievement goal associated with this internship. In the mastery goal condition, the scenario was as follows:

> Imagine that you are an undergraduate student, and you are doing a research internship at your university. You really like to do research, and therefore you are thinking about pursuing a PhD after your graduation. In the internship, you collaborate with another student who is also an intern. Together, you will execute an investigation for the principal investigator and analyze the results afterwards. Furthermore, the principal investigator has said that interns who manage to develop themselves in doing research have the opportunity to stay at the faculty as a graduate student. Therefore, you are strongly motivated to improve your skills and master your research abilities during this internship.

In the performance goal condition, the participants read the following scenario:

> Imagine that you are an undergraduate student, and you are doing a research internship at your university. You really like to do research, and therefore you are thinking about pursuing a PhD after your graduation. In the internship, you collaborate with another student who is also an intern. Together, you will execute an investigation for the principal investigator and analyze the results afterwards. Furthermore, the principal investigator has said that the best intern has the opportunity to stay at the faculty as a graduate student. Therefore, you are strongly motivated to perform better than the other intern during this internship.

After reading either one of the scenarios, the participants were asked to respond to questions about self-efficacy and help-giving.

Measures
Self-efficacy. Self-efficacy was assessed using a 10-item measure developed and validated by Schwarzer and Jerusalem (1995). Items were adapted to fit the situation that the participants read, so that high scores on this measure reflected a strong general sense of competence and effectiveness in the described scenario (e.g., "in this situation, I am confident that I could deal efficiently with unexpected events"; $1 = $ *not at all true*, $4 = $ *exactly true*; $\alpha = .85$).

Help-giving. Ten items measured attitudes toward helping the other intern ($\alpha = .91$). These items were comparable to those used in Study 1, but they were adapted to the

context of the internship situation (e.g., "helping the other student with a difficult part of the research, even when help is not directly requested", and "giving a tutorial on a software package (e.g., SPSS) if the other intern is not familiar with it"; $1 = very\ unlikely$, $7 = very\ likely$).

Results

Help-giving

An ANOVA revealed a statistically significant effect of goal manipulation on the help-giving scale, $F(1, 117) = 9.69$, $p < .01$, $\eta_p^2 = .08$. As expected, in the mastery goal condition, participants indicated that they had more positive attitudes toward helping others ($M = 4.46$, $SD = 1.03$) than participants in the performance goal condition ($M = 3.85$, $SD = 1.12$).

Mediation Analysis

An ANOVA revealed a statistically significant effect of goal manipulation on the self-efficacy scale, $F(1, 117) = 5.89$, $p = .02$, $\eta_p^2 = .05$. As expected, participants in the mastery goal condition reported higher self-efficacy ($M = 3.15$, $SD = .36$) than participants in the performance goal condition ($M = 2.95$, $SD = .51$). Since self-efficacy was expected to mediate the effect of achievement goal on help-giving, a hierarchical regression analysis using the approach recommended by Baron and Kenny (1986) was conducted. As presented above, achievement goal (performance goal $= 0$; mastery goal $= +1$) predicted help-giving ($\beta = .28$, $t = 3.11$, $p < .01$). Furthermore, self-efficacy had a positive relationship with help-giving, $\beta = .24$, $t = 2.69$, $p < .01$. When both the independent variable and the mediator were entered as predictors, the effect of achievement goal on help-giving decreased in magnitude ($\beta = .23$, $t = 2.62$, $p < .02$), whereas the effect of the mediator was statistically significant ($\beta = .19$, $t = 2.12$, $p < .04$). To formally test for mediation, a bootstrap analysis (Preacher & Hayes, 2004; Shrout & Bolger, 2002) was employed to test the reduction in the direct effect. This approach involves computing 95% confidence intervals (CIs) around indirect effects; mediation is indicated by CIs that do not contain zero. The results gave a CI range from .0027 to .2753. On the basis of this result (zero is not included in the 95% CI), it is concluded that the mediated effect is indeed statistically significantly different from zero ($p < .05$; 5,000 bootstrap resamples).

Study 3

The Study 2 results replicate the Study 1 finding by demonstrating that students' achievement goals predict help-giving and extend the finding of Study 1 by showing that this effect is partially mediated by self-efficacy. It could be argued that, in academic settings, goals may be externally suggested as well as self-set. For that reason, in achievement-goal research, the methods both of manipulating goals and of measuring self-reported goals are conventional. The first method allows for learning about causal effects, but the latter gives insight into the relationships between motivational variables (Harackiewicz & Barron, 2008). So, to strengthen the generalizability of the findings of the first two studies, a final study was conducted in which the proposed model was tested with self-reported goals rather than assigned goals. Another argument pleading in favor of replicating the present results with self-set goals is that the inductions used in Studies 1 and 2 were quite explicit. Even if previous research with manipulated goals also used quite explicit goal manipulations, (e.g., Barron & Harackiewicz, 2001; Crouzevialle & Butera,

2013; Darnon, Butera, & Harackiewicz, 2007; Van Yperen, 2003), in the present studies, the high similarity between what was asked to participants and the dependent variable might partly explain the obtained effect. Measuring goals will clarify this issue.

Furthermore, measuring mastery and performance goals allows for testing multiple goal effects. Indeed, it has been widely recognized that individuals can pursue multiple goals by striving simultaneously for mastery and performance (e.g., Barron & Harackiewicz, 2000, 2001; Bouffard, Boisvert, Vezeau, & Larouche, 1995; Darnon et al., 2010; Riveiro, Cabanach, & Arias, 2001; Valle et al., 2003). By implication, mastery and performance goals might have interactive effects in social contexts (cf. Senko et al., 2011). According to such an interactive goal pattern, mastery and performance goals may interact in a way that leads to most desirable outcomes when individuals are high on both types of goals (Barron & Harackiewicz, 2001). For example, Bouffard and colleagues (1995) and Wentzel (1993) found that students who simultaneously held mastery and performance goals had the highest course grades. Likewise, Janssen and Van Yperen (2004) found that persons with strong mastery goals performed relatively well in their jobs, regardless of the strength of their performance goals, but when mastery goals were weak, performance goals had a negative relationship with performance. Research by Darnon and associates (2010) showed that mastery goals had a positive relationship with social comparison, but only when performance goals were relatively strong.

The current research focuses on help-giving. It may be argued that setting a self-improvement goal may eventually facilitate getting ahead of others. Specifically, improving one's own performance automatically increases the likelihood that one will be able to outperform others. From the assumption that help-giving is a feasible behavioral option because it may enhance self-improvement, it is argued that having strong mastery goals buffers the expected negative relationship of performance goals with help-giving. From this reasoning it follows that, when students have relatively weak mastery goals, it may be expected that performance goals have a negative relationship with help-giving. This interaction hypothesis is tested in Study 3.

Method

Participants and Procedure

The relationship between achievement goals, self-efficacy, and help-giving was measured in a survey in which 97 undergraduate students participated. Of this sample, 33.0% were male and the average age of the participants was 21.90 years ($SD_{age} = 3.16$).

Measures

Achievement goals. Individual differences in achievement goals were tested with Elliot and Murayama's (2008) achievement-goal questionnaire. The participants responded to three mastery-approach goal items (e.g., "in my studies, my goal is to learn as much as possible"; $\alpha = .75$) and three performance-approach goal items (e.g., "my aim is to perform well relative to other students"; $\alpha = .80$) on a seven-point scale ($1 = $ *strongly disagree*, $7 = $ *strongly agree*).

Self-efficacy. The proposed mediator was assessed using the same self-efficacy measure as used in Study 2, but now the items were adapted to fit a general academic context (e.g., "in my studies, I am confident that I could deal efficiently with unexpected events", $1 = $ *not at all true*, $4 = $ *exactly true*; $\alpha = .83$).

Help-giving. Help-giving was measured in the same way as in Study 1 ($\alpha = .80$).

Results

Descriptive Statistics and Correlations

Means, standard deviations, and zero-order Pearson correlations between the variables are presented in Table 1. As predicted, mastery goal showed positive correlations with self-efficacy and with help-giving. No statistically significant correlations were found between performance goal and these outcome measures. Furthermore, self-efficacy was positively related to help-giving.

Test of Direct Effects

In the regression models, mastery and performance goal were included to test their hypothesized relationships with the mediating and outcome variable. The results indicated that mastery goals were positively and significantly related to self-efficacy ($\beta = .27$, $t = 2.50$, $p = .01$) and help-giving ($\beta = .29$, $t = 2.77$, $p < .01$). Furthermore, the results showed that performance goals were not significantly related to self-efficacy ($\beta = -.04$, $t = -.37$, $p = .71$) or to help-giving ($\beta = -.17$, $t = -1.64$, $p = .11$). Self-efficacy had a positive relationship with help-giving ($\beta = .34$, $t = 3.54$, $p < .001$).

Mediation Analysis

To investigate whether the positive relationship of mastery goals with help-giving could be explained by self-efficacy, an additional analysis was conducted by adding a second hierarchical step containing self-efficacy, to the regression model. The regression coefficient of the relationships between mastery goal and the outcome variable decreased to $\beta = .22$ ($t = 2.04$, $p < .05$). Moreover, although the effect of mastery goal decreased, self-efficacy as mediator had a statistically significant effect on the help-giving variable ($\beta = .30$, $t = 3.02$, $p < .01$).

To formally test whether the relationship of mastery goal with help-giving significantly decreased upon the addition of self-efficacy, a bootstrap analysis was employed. The results yielded a CI range from .0062 to .2039. From this result (zero is not included in the 95% CI), it is concluded that the mediated effect differs statistically significantly from zero ($p < .05$; 5,000 bootstrap resamples). Given that neither the outcome variable (help-giving) nor the mediator (self-efficacy) was predicted by performance goals, this precludes a formal test of mediation.

In this study, achievement goals are treated as self-set personal goals that may influence students' experienced level of self-efficacy, and, in turn, their helping behavior. However, alternatively, the level of self-efficacy might be a factor impacting the students' achievement goals. So, perhaps mastery goals and self-efficacy are mutually enhancing mechanisms that promote helping. Therefore, we tested an alternative path model in which

TABLE 1   Means, Standard Deviations, and Pearson Correlations among the Variables (Study 3)

		M	*SD*	1	2	3
1	Mastery goal	5.47	.83			
2	Performance goal	4.45	1.27	.37***		
3	Self-efficacy	3.02	.46	.25*	.06	
4	Help-giving	5.32	.77	.23*	-.07	.34***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

mastery goals mediated the relationship between self-efficacy and help-giving. First, self-efficacy was positively related to help-giving ($\beta = .34$, $t = 3.54$, $p < .001$). When mastery goals were added to the model, the regression coefficient of the relationship between self-efficacy and help-giving declined slightly (to $\beta = .30$, $t = 3.02$, $p < .01$). The CI of another bootstrap analysis ranged from $-.0026$ to $.2028$. On the basis of this result (zero is included in the 95% CI), it cannot be concluded that mastery goals act as a significant mediator in the relationship between self-efficacy and help-giving.

Interaction Analysis

In the first two studies and in the analysis above, mastery and performance goals were treated as independent constructs. However, as discussed, multiple achievement goals can coexist in a person. Also, the moderate correlation between mastery and performance goals in the present study ($r = .37$, $p < .001$) indicates that trying to attain mastery is not necessarily inconsistent with striving to outperform others. In order to detect a possible interaction effect between mastery and performance goals on help-giving, and to obtain more insight into the precise pattern of it on help-giving, an additional regression analysis was performed. After controlling for the main effects of both achievement goals in Step 1, in the second step the cross-product term of mastery goal and performance goal was added. The predictor variables were centered before calculating the cross-product term and regression statistics (cf. Aiken & West, 1991). This analysis indicated that mastery and performance goals interacted in their effects on the help-giving measure ($\Delta R^2 = .04$, $b = .14$, $p < .04$). To interpret this interaction effect, the total regression equation was rearranged into simple regressions of help-giving on performance goal, given conditional values of mastery goal (mean - 1 SD, mean $+1$ SD; cf. Aiken & West, 1991). As shown in Figure 1, in the case of a strong mastery goal, relatively high levels of help-giving were obtained regardless of the strength of an individual's performance goal ($b = .001$, *ns*). However, when mastery goals were weak, performance goals had a negative relationship with help-giving ($b = -.23$, $p < .01$). So, although performance goals had no direct relationship with help-giving, this simple slope analysis provides qualified evidence for the prediction concerning the negative relationship between performance goals and help-giving. These findings signify that relatively strong mastery goals are needed to buffer the potentially negative effect of performance goals on help-giving.
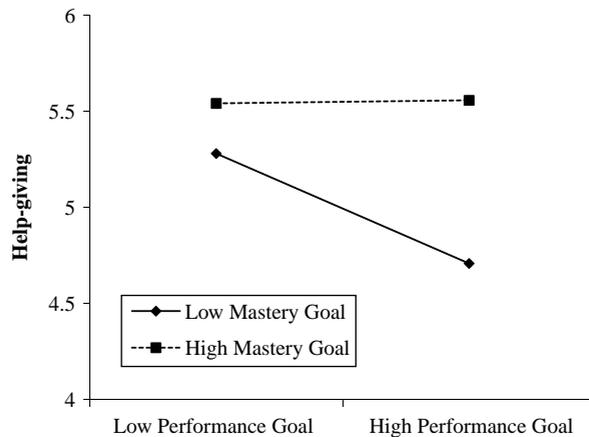
FIGURE 1 Interaction effect of performance goals and mastery goals on help-giving (Study 3).

General Discussion

Helping others and receiving help from others is a very effective way to achieve academic success, learning, and many associated positive outcomes in classrooms (for reviews, see Johnson & Johnson, 1989; Johnson, Johnson, & Smith, 2007; Ryan et al., 2001). But what makes students help others, and why? Across three studies, consistent support was found for the general expectation that mastery goals are more strongly connected to help-giving attitudes toward peers, relative to performance goals. Furthermore, in Study 2, evidence was found that self-efficacy may partially explain this effect of achievement goals on help-giving. The results obtained in this paper were remarkably consistent across different types of studies (experimental research able to provide causal evidence, and survey research representing a more externally valid setting), across different levels of realism (self-presentation paradigms and a field study), and across different types of measures assessed (relating to the context of the vignette and by assessing students' general academic motivation and attitudes).

Theoretical and Practical Implications

Previous goal research has fully demonstrated that mastery and performance goals differently affect help-seeking in the classroom (e.g., Butler, 1998, 2008; Butler & Neuman, 1995; Karabenick, 2004; Newman, 1990; Tanaka, Murakami, Okuno, & Yamauchi, 2001). Surprisingly, however, little research has focused on the helper's point of view. The present research complements previous research by showing that goals affect not only help-seeking, but also help-giving. Mastery contexts, more so than performance contexts, encourage students to help others and cooperate in the classroom. Moreover, earlier research has addressed the relationship between achievement goals and self-efficacy (e.g., Bandalos et al., 2003; Roeser et al., 1996; Shim & Ryan, 2005; see also Bong, 2009), and a few studies have included academic self-efficacy as an antecedent of prosocialness (e.g., Bandura et al., 1996). The present series of studies expands on these earlier findings by proposing and demonstrating that achievement goals may actually shape help-giving through self-efficacy. It must be noted, however, that these results should be interpreted with some caution, because in the current research only self-report measures of help-giving were assessed. It may be argued that reporting help-giving could be subject to social desirability, and some participants may have reported inflated levels of positive attitudes toward helping others that do not match their actual help-giving.

The present investigation is particularly relevant for the recent interest in research devoted to the social effects of achievement goals. An earlier study found that individuals' exchange orientations predicted their subsequent information-exchange behavior (Poortvliet et al., 2007). That research showed that being oriented toward reciprocity (having the expectation that giving good information will result in receiving good information back) and being oriented toward exploitation (the tendency to profit from others' exchange efforts without giving good information in return) acted as positive and negative predictors of the quality of information exchange, respectively. However, to date, little is known about possible intra-individual processes, especially processes relating to the self, which may play a mediating role between achievement motivation and social behavior. The current series of studies has demonstrated that self-efficacy may meaningfully explain help-giving between students.

Another noteworthy point of discussion concerns the dimensionality of achievement goals. It has been firmly established that distinct achievement goals are not mutually exclusive (e.g., Barron & Harackiewicz, 2000; Bouffard et al., 1995; Bouffard, Vezeau, &

Bordeleau, 1998; Riveiro et al., 2001; Valle et al., 2003). This means, for instance, that a student may have both a strong mastery goal and a strong performance goal. Although across the achievement goal literature several calls have been made to investigate the interactive effects of achievement goals, such research has been relatively scarce. In the current paper, we have shown that mastery and performance goals interact in such a way that, when students have a strong mastery goal, relatively high levels of help-giving are reported regardless of the strength of the individuals' performance goal, but, when mastery goals are weak, performance goals negatively affect help-giving. Clearly, it will not be beneficial for helping others if students focus exclusively on outperforming others. However, when students strive for self-improvement as well, this might temper the emphasis on interpersonal competition and instead the investment in task-related exchanges with others might be viewed as benefitting goal attainment. Janssen and Van Yperen (2004) have posited that such an outcome pattern may be explained by the idea that strong mastery goals may direct a person's focus away from typical performance goal cognitions and evaluation criteria, resulting in buffering or moderating the negative consequences of performance goals. The current findings are in line with earlier observations that negative or maladaptive effects of performance goals are most salient when mastery goals are absent or relatively weak (Farr, Hofmann, & Ringenbach, 1993; Janssen & Van Yperen, 2004).

So, the present results indicate that strong mastery goals are needed to buffer the negative effect of a performance goal on help-giving. Without taking into account this joint effect of achievement goals, one might jump to the conclusion that mastery goals should be encouraged and performance goals should be discouraged. Indeed, the results of the current studies show that mastery goals lead to more positive attitudes toward help-giving in an educational context than performance goals. As Study 3 showed, however, when students have relatively high levels of mastery goals, the potentially negative effects of performance goal are no longer observed. Also, to create an educational climate that exclusively focuses on mastery goals may be in practical conflict with academic realities (cf. Darnon et al., 2009). So, rather than call for the banning of performance goals from university, the present research indicates that mastery goals lead to the most constructive effects in terms of cooperation between students, *even when levels of performance goals are high* (cf. Figure 1). It has been noted that stimulating multiple goals is a quite difficult endeavor, given the big differences in goal content between mastery and performance goals (e.g., Senko et al., 2011). On the basis of the current outcomes, we would rather call for a more parsimonious encouragement of achievement goals—specifically that of mastery goals by designing criterion-referenced evaluation systems rather than normative evaluation systems (cf. Covington & Omelich, 1984).

As a final point, we have treated self-efficacy as a mediating process rather than as a moderator. In our view, achievement goals and self-efficacy are not relatively independent constructs, but instead, in keeping with Harackiewicz and Sansone (1991), and Payne and colleagues (Payne, Youngcourt, & Beaubien, 2007), we view task-specific self-efficacy as a motivational process that is elicited by the adoption of specific achievement goals. In this regard, it should be mentioned that various authors have observed that, in the literature, achievement goals and self-efficacy have a reciprocal relationship (Phan, 2009; Roeser et al., 1996), but both Phan and Roeser et al. conceptualize achievement goals as an antecedent of self-efficacy. Although in the current research self-efficacy was elicited by the manipulation of achievement goals in Study 2, the correlational design of Study 3 does not permit us to draw causal conclusions about which motivational process acts as an antecedent of the other—although our mediation analyses showed that self-efficacy acted as a mediator, whereas achievement goals did not. Evidence for the claim that self-efficacy

acts as a mediator was offered more conclusively by Phillips and Gully's (1997) longitudinal study, which demonstrated that self-efficacy acted as a process variable in the relation between achievement goals and performance outcomes.

Future Directions and Conclusion

Some caveats must be entered regarding the findings of the current study. For one thing, the present series of studies did not study long-term effects of mastery and performance goals on help-giving. Although the first two studies in this paper provide causal evidence for the proposed theoretical model, future research should study the mediating role of self-efficacy in the effect of achievement goals on social outcomes by means of longitudinal designs. Another limitation of the current research is the self-report nature of the help-giving measure. Future research should ideally incorporate multi-source ratings of help-giving between students.

It is also important to note that, in Studies 1 and 2, it is hard to know whether the effects are due to an increase in help-giving in the mastery condition, or a decrease in the performance condition. In Study 3, mastery goals increase help-giving but performance goals do not; this supports the idea that mastery goals and not performance goals are the goals responsible of the increase in help-giving. However, among those who were low in mastery goals, stronger performance goals were related to a decrease in help-giving. To further clarify this point, future research should include a control (no goal) group condition in experimental studies.

The current studies extend the social approach of achievement motivation research by taking a closer look at achievement goal effects on attitudes toward task-related helping between students. It has been shown that mastery goals have a stronger relationship with help-giving relative to performance goals, and this effect was demonstrated to run via the students' level of academic self-efficacy. Perhaps paradoxically, the current research demonstrates that, when students are focused on *themselves*, and thus on self-improvement, rather than when they are focused on others, by aiming for interpersonal superiority, this actually leads to more constructive social effects in terms of help-giving.

Notes

1. Mastery goals and performance goals have typically been portrayed, both implicitly and explicitly, as approach forms of regulation, that is, as goals directed toward positive or desirable events (Elliot, 2005). Accordingly, *performance-approach* goals reflect the desire to demonstrate superior competence relative to others, whereas *mastery-approach goals* reflect the desire to develop competence by mastering new situations (Elliot & McGregor, 2001). It must be acknowledged that mastery and performance goals can also be directed at avoiding negative and undesirable events. Specifically, *performance-avoidance goals* reflect the desire to avoid doing worse than others, whereas *mastery-avoidance goals* reflect the desire to avoid doing worse than one has done before. But, because the present paper exclusively focuses on approach goals – the goals that have been most developed in literature – in this paper performance-approach goals are referred to as *performance goals* and mastery-approach goals as *mastery goals*.
2. In the experiments presented in this paper (Study 1 and Study 2), gender was proportionally distributed among conditions. Gender had no main or interaction effects on the dependent variables in the experiments and was thus dropped from the analyses. In Study 3, preliminary analyses showed that gender did not interact with goals, and thus gender was not retained in the final model.

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