Motivated use of information about others: Linking the 2 × 2 achievement goal model to social comparison propensities and processes

Lênda Bounoua1,∗, François Cury1,2, Isabelle Regner1,3, Pascal Huguet1, Kenneth E. Barron4 and Andrew J. Elliot5

1Centre National de la Recherche Scientifique (CNRS) University of Provence, Marseille, France
2South University of Toulon Var, Toulon, France
3CNRS University of Méditerranée, Marseille, France
4James Madison University, Harrisonburg, Virginia, USA
5University of Rochester, New York, USA

The present research used correlational and experimental methods and two well-established social comparison paradigms to integrate and extend prior research from the achievement goal and social comparison literatures. In Study 1, a general disposition to engage in social comparison was positively correlated with each type of goal in the 2 × 2 model of achievement goals, suggesting that the desire to seek out social comparison information is not exclusive to a particular type of achievement goal pursuit. In Study 2, when evaluating the specific direction of social comparison (upward or downward), the pursuit of performance-approach, mastery-approach, and mastery-avoidance goals facilitated upward social comparison, and the pursuit of performance-avoidance goals prompted a shift away from upward comparison towards downward comparison. The present findings provide new insight to the emerging integration of achievement goals and social comparison.

The achievement goal and social comparison research traditions share a considerable degree of conceptual overlap. Both traditions focus on one’s competence and how it can be evaluated, improved, or protected by means of evaluative standards (e.g., Elliot, 1997; Festinger, 1954; Nicholls, 1984; Suls, Martin, & Wheeler, 2002; Wood, 1989). Despite these convergent foci, little research has been conducted with an eye towards integrating them (Butler, 2000; Damon, Dompnier, Gilliéron, & Butera, 2010; Regner, Escribe, & Dupeyrat, 2007). As noted recently by Wheeler and Suls (2005), ‘It is strange that social comparison has not been better integrated into the achievement motivation

∗Correspondence should be addressed to Lênda Bounoua Laboratoire de Psychologie Cognitive (LPC), Pôle 3C (Comportement, Cognition, Cerveau), UMR CNRS 6146-Université de Provence, Case D, Centre Saint Charles, 3 place Victor Hugo, 13331, Marseille Cedex 3, France (e-mail: lenda.bounoua@univ-provence.fr).

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literature’ (p. 567). Indeed, this is ‘strange’ given that integration would seem to hold promise for furthering both areas of inquiry, and for shedding light on how people are motivated to use information about others. In the present research, we seek to address this shortcoming with two studies designed to link, for the first time, the most fully developed model of achievement goals, the $2 \times 2$ achievement goal framework (Elliot, 1999), to fundamental social comparison issues. In Study 1, we examine the pattern of relations between each goal of the $2 \times 2$ achievement goal framework and the general disposition to engage in social comparison. In Study 2, we adopt an experimental approach to evaluate how each goal influences the specific direction of one’s social comparison (upward or downward).

**Achievement goals and social comparison**

Over the past 30 years, an achievement goal approach has become the predominant theoretical framework to study achievement motivation. Achievement goals represent the aim guiding competence-relevant activity (Elliot, 1999; Maehr, 1984), and are posited to create a framework for how people interpret and experience achievement settings (Dweck, 1999; Nicholls, 1989). Initially, theorists (Dweck, 1986; Maehr, 1984; Nicholls, 1984) proposed a dichotomous model distinguishing performance versus mastery goals. These two types of goals were differentiated primarily on the basis of how competence is defined. When pursuing a performance goal, competence is defined in terms of normative standards (comparing oneself with others), and the aim is to demonstrate competence relative to others. When pursuing a mastery goal, competence is defined in terms of self (one’s own past performance) or absolute (the requirements of the task itself) standards, and the aim is to develop competence and acquire task mastery. Moving beyond a dichotomous model, Elliot and colleagues (Elliot, 1999; Elliot & Harackiewicz, 1996) further differentiated performance and mastery goals by how competence is valenced and split each goal into approach and avoidance forms of regulation (reflecting the positive possibility of success or the negative possibility of failure). Initially, a trichotomous model was proposed, yielding separate performance-approach goal and performance-avoidance goal constructs. With a performance-approach goal, the aim is to approach doing better than others; with a performance-avoidance goal, the aim is to avoid incompetence relative to others. Elliot (1999) then proposed separating the mastery goal construct into mastery-approach and mastery-avoidance goal constructs, resulting in a $2 \times 2$ achievement goal model. The aim of a mastery-approach goal is to develop continued self- or task-based competence, whereas a mastery-avoidance goal is focused on maintaining or avoiding losses in self- or task-based competence. Each of the $2 \times 2$ achievement goal constructs has been successful in predicting and explaining a wide range of motivational processes and achievement outcomes (e.g., effort, persistence, task absorption, self-handicapping, intrinsic motivation, evaluation anxiety, task performance; see Elliot, 2005, for a review).

The social comparison literature had its formal genesis in a classic article by Festinger (1954) in which he contended that individuals are motivated to acquire self-knowledge, and that they often do so using others as a source of information. Knowledge about one’s ability or competence is most central to the present research. Prior empirical work has clearly shown that social comparison with regard to ability and competence is both ubiquitous (Buunk & Gibbons, 2007; Levine, 1983; Monteil & Huguet, 1993; Wheeler
& Miyake, 1992) and automatic (Gilbert, Giesler, & Morris, 1995; Huguet, Galvaing, Monteil, & Dumas, 1999; Mussweiler & Rüter, 2003; Stapel & Blanton, 2004). More recently, Suls et al. (2002) noted that social comparison consists of comparing oneself with others in order to evaluate or enhance some aspect of the self.

Another distinction that is a hallmark of the social comparison literature centers on the direction of comparison (upward or downward; Hakmiller, 1966; Thornton & Arrowood, 1966; Wheeler, 1966). Upward social comparison involves comparing oneself to superior others, whereas downward comparison involves comparing oneself to inferior others. Festinger (1954) posited that individuals have ‘unidirectional upward drives’ and Wheeler (1966) posited that this impels people to compare to slightly better others (especially with regard to abilities). Research has shown that although such upward comparison is indeed commonplace, downward comparison also occurs (Affleck & Tennen, 1991; Wills, 1991; see also Buunk & Gibbons, 2007; Wood, Michela, & Giordano, 2000). Motivation has been viewed as a primary determinant of the direction of social comparison. In the literature on general, self-based motivation, self-evaluation motivation has been posited to evoke comparison with others at or slightly above one’s own level, self-improvement motivation has been posited to evoke upward comparison, and self-enhancement (more specifically, self-protection) motivation has been posited to evoke downward comparison (Collins, 1996; Wood, 1989; see also Buunk & Gibbons, 2007; Suls & Wheeler, 2000).

More specifically with regard to achievement goals, a question that immediately arises is whether the use of social comparison standards is restricted to performance-based goals that focus on a normative standard or whether social comparison is applicable to mastery-based goals as well. In several experiments based on the dichotomous achievement goal model, Butler (1992, 1993, 1995) found that individuals use social comparison standards under both performance and mastery goal conditions. For example, in one study (Butler, 1992), after students performed a task under mastery or performance goal instructions, they were allowed to examine additional information to compare their performance to other students, to learn more about their personal style, or to learn more about the task. Although students given performance goal instructions spent more time comparing their scores to normative information, students given mastery goal instructions also spent considerable time engaged in normative comparison, dividing their time fairly evenly between the available information sources. Subsequently, in a series of elegant studies, Butler demonstrated that both mastery and performance goals facilitate social comparison, but do so for different reasons (Butler, 2000). Mastery goals evoke social comparison in order to learn from others and acquire information regarding how to improve one’s competence, whereas performance goals evoke social comparison in order to assess one’s level of competence and self-worth relative to others. Such findings offered the first evidence that social comparison is not restricted to competitive, self-evaluation concerns (i.e., performance goal pursuits), and that social comparison also can serve self-improvement and learning purposes (i.e., mastery goal pursuits; see also Aspinwall, Hill, & Leaf, 2002; Taylor & Lobel, 1989; Wood, 1989, 1996).

More recently, to further show that mastery goals are not incongruent with seeking out social comparison information, Régner et al. (2007) and Darnon et al. (2010) examined the trichotomous achievement goal model and found that mastery goals, along with performance-approach and performance-avoidance goals, positively predicted the tendency to engage in social comparison (as measured by the social comparison orientation (SCO) scale; Gibbons & Buunk, 1999). Thus, there is emerging evidence suggesting that mastery goals may promote an interest in social comparison.
The present research

In the present research, we sought to extend the existing research in two ways in order to more fully integrate the achievement goal and social comparison literatures. Our first, and most straightforward, aim was to update the existing research on achievement goals and SCO by focusing on the full $2 \times 2$ achievement goal model in this context. Thus, in Study 1, we investigated the correlations between an individual’s pursuit of the four goals of the $2 \times 2$ achievement goal model and their dispositional propensity to engage in social comparison. This allowed us to consider how mastery-avoidance goals (which focus on preserving one’s skills) relate to the tendency to engage in social comparison. We predicted that this relationship would be positive, because social comparison provides useful information relevant to the digression of one’s performance, skills, and abilities (e.g., if all are digressing, it is likely due to factors concerning the task or the achievement environment, not the self; Aspinwall et al., 2002; Lewin, Dembo, Festinger, & Sears, 1944; Suls & Wheeler, 2008).

Our second aim, in Study 2, was to examine the links between the four goals of the $2 \times 2$ achievement goal model and the direction of social comparison. This issue has yet to be addressed in the empirical literature, which is quite surprising because it is generally accepted that the direction of social comparison serves a variety of functions, and that people alter their comparison strategies according to their current motivation (Blanton, Buunk, Gibbons, & Kuyper, 1999; see also Taylor & Lobel, 1989; Wood, 1989; Wood & Taylor, 1991). Extensive research has shown that slightly upward comparison is commonplace, both in the laboratory (Collins, 2000; Wheeler, 1966) and in natural settings such as classrooms (Blanton et al., 1999; Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008; Dumas, Huguet, Monteil, Rastoul, & Nezlek, 2005; Huguet, Dumas, Monteil, & Genestoux, 2001). Downward comparison is far less common, and typically occurs as a response to self-threatening events (Affleck & Tennen, 1991; Buunk & Gibbons, 2007; Wills, 1981, 1991; Wood et al., 2000).

At first glance, downward comparison may seem particularly attractive for those pursuing performance-approach goals. After all, these comparisons highlight one’s superiority relative to others. However, as just noted, downward comparisons are typically thought to be a response to aversive events, which run counter to the appetitive/approach nature of performance-approach goals. Instead, upward comparisons may be more attractive for those pursuing performance-approach goals, because these comparisons provide a challenge (Latané, 1966) and afford the possibility to perceive oneself as belonging in a higher ability group (i.e., upward assimilation; see Collins, 1996, 2000; Huguet et al., 2009; Wheeler, 1966). Performance-avoidance goals, on the other hand, focus on the negative possibility of being inferior to others. These goals may shift individuals away from upward comparisons, because information about superior others is construed as threatening to the self, and towards downward comparisons that provide non-threatening, reassuring information about those worse than oneself.

Mastery-approach and mastery-avoidance goals focus on improving and not losing one’s skills, respectively, and we posit that both of these goals will lead to upward comparison. As with those pursuing performance-approach goals, those pursuing mastery-approach goals should find upward comparisons attractive, because they provide a challenge and a way to acquire helpful and inspiring information regarding improvement. It is possible that mastery-avoidance goals may prompt downward comparison, much like performance-avoidance goals, given their focus on avoiding negative outcomes. However, the task-based and intrapersonal focus of these goals makes self-protection less relevant, and may allow information about superior others to be construed as useful
information rather than a threat to self-worth. As such, we (tentatively) predict that
mastery-avoidance goals, like mastery-approach and performance-approach goals, will
prompt upward social comparison. In sum, we predicted that all achievement goals but
one, performance-avoidance goals, would lead to upward comparison.

STUDY 1

Method

Participants and procedure
Two hundred and ninety-four French junior high school students (165 females, 129
males; \(M = 14.68\) years old, \(SD = 1.47\)) volunteered for Study 1, which was conducted
as part of a larger project on motivation at school. Participants completed a questionnaire
in their regular classroom that measured their achievement goals for mathematics and
their general orientation to engage in social comparison.

Achievement goals
Cury, Elliot, Da Fonseca, and Moller’s (2006) questionnaire (based on Elliot & McGregor,
2001) was used to assess participants’ \(2 \times 2\) achievement goals for math. Three items
assessed each goal (performance-approach: for example, ‘This term, in mathematics, it is
important for me to do better than other students’; performance-avoidance: for example,
‘This term, in mathematics, my goal is to avoid performing worse than other students’;
mastery-approach: for example, ‘This term, in mathematics, I want to learn as much
as possible’; mastery-avoidance: for example, ‘This term, in mathematics, my goal is to
avoid doing worse than before’). Participants responded using a 1 (strongly disagree)
to 7 (strongly agree) scale. A confirmatory factor analysis (CFA) using maximum likelihood
estimation and the covariance matrix indicated that the four-factor model provided a
good fit to the data, \(\chi^2(48) = 63.92, p = .06\); AGFI = .94, CFI = .99, RMSEA = .034. All
items displayed strong loadings on their respective factors (between .80 and .87), and
were averaged to form the four achievement goal variables. (all \(\alpha s > .85\)).

Social comparison orientation
Following Régner et al. (2007) and Darnon et al. (2010), we used Gibbons and Buunk’s
(1999) SCO scale comprised of 11 items (e.g., ‘If I want to find out how well I have done
something, I compare what I have done with how others have done’; ‘I often try to find
out what others think who face similar problems as I face’). Participants responded on
a 1 (strongly disagree) to 5 (strongly agree) scale. A CFA on the SCO items indicated
that a one-factor model provided a good fit to the data, \(\chi^2(44) = 79.38, p < .01\); AGFI = .93, GFI = .96, RMSEA = .050 (44) = 79.38, \(p < .01\); AGFI = .93, GFI = .96, RMSEA = .050. All items displayed strong loadings on their respective factors (between .65 and .81), and were averaged to
compute the SCO score (\(\alpha = .87\)).

Results and discussion
Gender was not significantly related to any of the variables and was therefore excluded
from the analyses. Table 1 displays the descriptive statistics and intercorrelations among
Table 1. Descriptive statistics and intercorrelations among the variables (Study 1)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Observed range</th>
<th>Possible range</th>
<th>r</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Social comparison orientation</td>
<td>3.12</td>
<td>.79</td>
<td>1−5</td>
<td>1−5</td>
<td>−.07</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Performance-approach goals</td>
<td>3.96</td>
<td>1.99</td>
<td>1−7</td>
<td>1−7</td>
<td>.06</td>
<td>.28∗∗</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mastery-approach goals</td>
<td>6.07</td>
<td>1.34</td>
<td>1−7</td>
<td>1−7</td>
<td>.04</td>
<td>.16∗∗</td>
<td>.14∗</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Performance-avoidance goals</td>
<td>4.03</td>
<td>1.75</td>
<td>1−7</td>
<td>1−7</td>
<td>.05</td>
<td>.24∗∗</td>
<td>.15∗</td>
<td>−.01</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Mastery-avoidance goals</td>
<td>4.56</td>
<td>1.74</td>
<td>1−7</td>
<td>1−7</td>
<td>.01</td>
<td>.18∗∗</td>
<td>−.03</td>
<td>.21∗∗</td>
<td>.18∗∗</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note. Gender was scored 1 for males and −1 for females.  
∗p < .05;  ∗∗p < .01.

the variables. As seen in the table, each achievement goal was positively associated with SCO: performance approach (r = .28, p < .001), performance avoidance (r = .24, p < .001), mastery approach (r = .16, p < .01), and mastery avoidance (r = .18, p < .01). Higher scores on SCO were linked to higher scores on each of the achievement goal measures.1

The results of Study 1 supported our first hypothesis that all four types of achievement goal pursuit are linked to the general tendency to seek social comparison information. These results both replicate and extend prior work (Darnon et al., 2010; Régner et al., 2007) by showing that mastery-avoidance goals, as well as performance-approach, performance-avoidance, and mastery-approach goals, are positively associated with a general tendency towards social comparison. As indicated earlier, however, this finding does not tell us how each goal relates to social comparison direction. This complementary issue was examined in Study 2, in which achievement goals were experimentally induced.

STUDY 2

Method

Participants and design

Seventy-seven French junior high school students (43 females, 34 males; M = 12.03 years old, SD = .52) volunteered for Study 2, which was an experiment conducted in students’ regular classroom environment. Female and male participants were randomly assigned to one of five conditions: performance-approach goal, performance-avoidance goal, mastery-approach goal, mastery-avoidance goal, and control (no goal assignment).

Procedure

Students were run individually by a female experimenter and were introduced to the coding subtest of the Wechsler Intelligence Scale for Children (WISC III; Wechsler, 1996). This subtest, which requires transcribing a digit-symbol code as quickly as possible

1 The same pattern of findings was observed when multiple regression procedures were used to analyse the data (see Régner et al., 2007).
Social comparison

for 2 min, was described as a measure of attentional and concentration capacity for adolescents. It has been used successfully to study achievement motivation in academic (Cury et al., 2006; Cury, Da Fonseca, Zahn, & Elliot, 2008) and therapeutic contexts (Da Fonseca et al., 2008; Da Fonseca et al., 2010). Once participants completed their first test session, the experimenter induced the achievement goals via a written document focusing on the purpose of the research (based on Cury, Elliot, Sarrazin, Da Fonseca, & Rufo, 2002); a no goal assignment condition was also included.

All students were first informed that the research was designed to better understand the attentional and concentration capacity of teenagers. Instructions in the performance-based goal conditions focused participants on normative standards. They read: ‘This study has been set up all over France in order to identify the students across schools with the best (worst) (performance-approach [performance-avoidance]) scores on attention and concentration tests. If your performance is better (poorer) than other students, you will demonstrate that you have good (poor) attentional and concentration capacity’. Instructions in the mastery-based goal conditions focused participants on self-referenced standards. They read: ‘This study has been set up all over France in order to quantify the degree of students’ improvement (deterioration) (mastery-approach [mastery-avoidance]) in attention and concentration over time (from test 1 to test 2). If your next performance (test 2) is better (poorer) than your previous one (test 1), you will have increased (decreased) your attentional and concentration level’. Before the second test session, participants completed an achievement goal manipulation check. This measure was based on four items: ‘In this session, I want to do better than other students’ (performance approach); ‘In this session, I want to avoid performing worse than other students’ (performance avoidance); ‘In this session, I want to do better than I did on the first test’ (mastery approach); ‘In this session, I want to avoid doing worse than I did on the first test’ (mastery avoidance). Students were instructed to rank the four items in order of importance from (1) the most important goal for me to (4) the least important goal for me.

After the second test, the experimenter scored the test and then provided participants with the opportunity to acquire information about their performance relative to that of other students using a procedure based on Wheeler’s (1966) well-known rank order choice (ROC) paradigm (see also Collins, 2000). First, the experimenter informed participants that the comparison students were matched to them on age, gender, and educational level. Second, the experimenter presented a distribution of scores for the other participants, and explained that the scores had been classified into nine groups (ranked 8-0). Third, participants were told that their own score was the middle score of 100 (associated with Rank 4), while the highest score was 148 (associated with Rank 8) and the lowest score was 52 (associated with Rank 0); this left six ranks for which the score was unspecified. Fourth, the experimenter presented participants with a series of six envelopes (labelled Ranks 7-1 excluding Rank 4), each placed on a different table. Participants were told that they could learn the score associated with one additional rank (Ranks 7, 6, 5, 3, 2, 1) by opening one of the envelopes, if they so desired. Then the experimenter announced that she had to leave the room to check on another participant, and the comparison behaviour of the participant was recorded by a hidden observer during this time. The experimenter then returned and debriefed the participant. The rank that the participant selected when the experimenter left the room was used as a measure of social comparison direction. Given that 4 was not a selection option, the ranks were coded: 7 = 6, 6 = 5, 5 = 4, 3 = 3, 2 = 2, 1 = 1.
Table 2. Means and standard deviations (in parentheses) of manipulation check by achievement goal condition in Study 2

<table>
<thead>
<tr>
<th>Manipulation check</th>
<th>Papp goal (n = 13)</th>
<th>Mapp goal (n = 15)</th>
<th>Pav goal (n = 17)</th>
<th>Mav goal (n = 16)</th>
<th>Control (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance-approach goal item</td>
<td>1.46 (.97)</td>
<td>2.87 (.83)</td>
<td>3.65 (.79)</td>
<td>3.63 (.50)</td>
<td>3.31 (1.08)</td>
</tr>
<tr>
<td>Mastery-approach goal item</td>
<td>2.69 (1.03)</td>
<td>1.07 (.26)</td>
<td>2.41 (.87)</td>
<td>2.12 (.89)</td>
<td>1.06 (.25)</td>
</tr>
<tr>
<td>Performance-avoidance goal item</td>
<td>3.38 (.87)</td>
<td>3.80 (.41)</td>
<td>1.53 (.87)</td>
<td>3.00 (.82)</td>
<td>3.19 (.66)</td>
</tr>
<tr>
<td>Mastery-approach goal item</td>
<td>2.46 (.78)</td>
<td>2.27 (.46)</td>
<td>2.41 (.87)</td>
<td>1.25 (.45)</td>
<td>2.44 (.51)</td>
</tr>
</tbody>
</table>

Note. Papp, performance approach; Mapp, mastery approach; Pav, performance avoidance; Mav, mastery avoidance. Students were instructed to rank the four items in order of importance from (1) the most important goal for me to (4) the least important goal for me. A majority of students classified the achievement goal item corresponding to their achievement goal condition as most important: 76.9% (n = 10) for the Papp goal condition, 93.3% (n = 14) for the Mapp goal condition, 70.6% (n = 12) for the Pav goal condition, and 75% (n = 12) for the Mav goal condition. For the control condition, 93.8% (n = 15) chose the Mapp goal item.

Results

Manipulation check
Based on the ranking of the four achievement goal items, a series of Friedman tests (Friedman, 1937) indicated, for each experimental condition, that students classified the achievement goal item corresponding to their goal condition as most important (all ps < .01); this demonstrated the efficacy of the goal manipulation. Participants in the no-goal assignment condition ranked mastery-approach goals as most important, suggesting that they were in an implicit ‘do your best condition’. The means and standard deviations are reported in Table 2.

Preliminary findings
A majority of participants (79%) chose to compare, and analyses indicated that participants who chose not to compare did not differ from those who chose to compare in terms of achievement goal condition ($\chi^2$s < 1.84, ps > .17). On average, participants chose to compare with another student who performed better than they performed ($M_{\text{diff}} = 1.78, SD = 1.12$). Preliminary analyses yielded no gender effects, so gender was not included in the final analyses.

Predicting comparison behaviour
A one-way Analysis of Variance (ANOVA) was used to examine the effect of achievement goals on social comparison behaviour. The analysis revealed an overall effect, $F(4, 55) = 3.21, p < .05$, $\eta_p^2 = .19$, indicating that different conditions led to different comparison behaviour. Follow-up contrasts revealed that the mean for the performance-avoidance goal condition ($M = 3.70, SD = 1.16$) was lower than that for the performance-approach goal ($M = 4.54, SD = .52; t(55) = 2.44, p < .05$), mastery-approach goal ($M = 4.54, SD = .78; t(55) = 2.52, p < .05$), and control ($M = 4.85, SD = .69; t(55) = 3.44, p < .01$) conditions; the performance-avoidance goal mean also tended to be lower.
Table 3. Study 2: Percentage of participants choosing to see the scores associated with various ranks by experimental condition

<table>
<thead>
<tr>
<th>Rank</th>
<th>Papp (N = 11)</th>
<th>Pav (N = 10)</th>
<th>Mapp (N = 13)</th>
<th>Mav (N = 13)</th>
<th>Control (N = 13)</th>
<th>Total (N = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>0.0%</td>
<td>10%</td>
<td>7.69%</td>
<td>0.0%</td>
<td>15.38%</td>
<td>6.67%</td>
</tr>
<tr>
<td>6</td>
<td>54.54%</td>
<td>10%</td>
<td>46.15%</td>
<td>46.15%</td>
<td>53.85%</td>
<td>43.33%</td>
</tr>
<tr>
<td>5</td>
<td>45.45%</td>
<td>30%</td>
<td>38.46%</td>
<td>38.46%</td>
<td>30.77%</td>
<td>36.67%</td>
</tr>
<tr>
<td>4*</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>0.0%</td>
<td>40%</td>
<td>7.69%</td>
<td>15.38%</td>
<td>0.0%</td>
<td>11.67%</td>
</tr>
<tr>
<td>2</td>
<td>0.0%</td>
<td>10%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.67%</td>
</tr>
<tr>
<td>1</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Note. *Rank 4, participant’s own score; Papp, performance-approach goal; Pav, performance-avoidance goal; Mapp, mastery-approach goal; Mav, mastery-avoidance goal.

than the mastery-avoidance goal mean, \((M = 4.31, SD = .75; t(55) = 1.82, p = .07)\). The performance-approach goal, mastery-approach goal, mastery-avoidance goal, and control conditions did not differ from each other \((ts < 1.73, ps > .08)\).

To further discern the nature of the comparison behaviour, we coded Ranks 5 through 7 as an upward comparison and Ranks 1 through 3 as a downward comparison (see Wheeler, 1966), and examined upward and downward comparison separately. With regard to upward comparison, the majority of participants in the performance-approach goal (100%), mastery-approach goal (92.31%), mastery-avoidance goal (84.61%), and control (100%) conditions chose an upward comparison target, whereas only 50.00% of participants in the performance-avoidance goal condition did so (see Table 3). Analyses indicated that participants in the performance-avoidance goal condition were less likely to choose an upward comparison than were participants in the performance-approach goal condition, \(\chi^2(1, N = 21) = 4.73, p < .05\), and the control condition, \(\chi^2(1, N = 23) = 5.63, p < .05\). Performance-avoidance goal participants also tended to exhibit less upward comparison than mastery-approach goal participants, \(\chi^2(1, N = 23) = 3.05, p = .08\), and evidenced a similar trend relative to mastery-avoidance goal participants, \(\chi^2(1, N = 23) = 1.52, p = .22\). The performance-approach goal, mastery-approach goal, mastery-avoidance goal, and control conditions did not differ from each other \((\chi^2 s < .54, ps > .46)\).

The results of this study are consistent with prior social comparison research in that the majority of participants engaged in social comparison behaviour, and on average participants compared themselves to a person who performed better than they performed. More importantly, contrasting the different achievement goal conditions revealed that performance-avoidance goal participants were less likely to engage in upward social comparison than those in the performance-approach goal and control conditions. A similar pattern was observed when comparing the performance-avoidance and mastery-approach goal conditions, and a similar trend was evidenced when comparing the performance-avoidance and mastery-avoidance goals conditions. The performance-approach goal, mastery-approach goal, mastery-avoidance goal, and control participants did not differ in their upward social comparison behaviour.
GENERAL DISCUSSION

The results of both studies offered consistent support for our hypotheses. Study 1 documented a link between each of the goals of the $2 \times 2$ achievement goal framework and a dispositional tendency to engage in social comparison. Based on the trichotomous achievement goal model, previous studies (Darnon et al., 2010; Régner et al., 2007) showed that performance-approach, performance-avoidance, and mastery-approach goals were positively related to this dispositional tendency. Here, we showed that this positive relation holds for mastery-avoidance goals as well, further strengthening the position that there is no inherent antagonism between mastery-based goals (approach or avoidance) and a dispositional propensity towards social comparison.

This first finding, however, does not tell us anything about the relationship between the four goals of the $2 \times 2$ framework and the direction of social comparison. Study 2 documented that all achievement goals but one, performance avoidance, lead to upward comparison. This finding is especially critical for advancing our understanding of the connection between social comparison and achievement goals, and joins emerging, integrative work in this area (e.g., Butler, 2000; Darnon et al., 2010; Régner et al., 2007) that some view as long overdue (see Suls & Wheeler, 2008).

That mastery-approach and performance-approach goals fostered highly similar patterns regarding SCO (Study 1) and social comparison direction (Study 2) conveys interesting information about both types of goals. With regard to mastery-approach goals, it suggests that a focus on pursuing self- or task-based competence does not preclude interest in normative information. Information about others’ performance can be useful in many different ways, and for those with mastery-approach goals, it likely helps them gauge their current level of competence, and may inform them about how they can improve their subsequent performance (Butler, 1995). In this context, normative information is used for instrumental purposes, which is somewhat ironic given that mastery-approach goals are commonly construed as quite intrinsic forms of regulation in the achievement goal literature (Ames, 1992).

Regarding performance-approach goals, it is certainly no surprise that these normatively focused goals lead students to value and seek normative information. What may seem surprising, at first glance, is that these goals did not promote downward comparison (Study 2), which is likely to highlight one’s superiority relative to others. As noted earlier, however, downward comparisons are thought to be a response to aversive events, which runs against the appetitive nature of performance-approach goals. Upward comparison, on the other hand, is appetitive in nature, providing a challenge (Latané, 1966) or the possibility to assimilate oneself to a higher group (Collins, 1996, 2000; Huguet et al., 2009; Wheeler, 1966). Indeed, by focusing on similarities with superior others, upward assimilation would allow individuals who pursue performance-approach goals not only to minimize self-other discrepancies, but also to have a feeling of superiority by association with their upward comparison targets (Mussweiler & Strack, 2000). Although we can only speculate at this time, two facts are congruent with an assimilation interpretation: participants shared a number of commonalities with the comparison targets (they were of the same age, the same education level, etc.), and participants chose slightly upward rather than dramatically upward comparison targets (thereby allowing the comparison targets to be attainable). On this basis, one should expect performance-approach goals to lead to the classic upward comparison direction, which is precisely what we found. Parenthetically, the fact that performance-approach goals and the desire for upward comparison are cast in a rather positive
light in the present research merits special attention in the achievement goal literature. Many achievement goals theorists characterize competition and normative feedback of any sort as detrimental for motivation and learning, but the present results add to a growing body of work suggesting that the picture may be more complex than initially anticipated (see Elliot & Moller, 2003; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002).

Given that mastery-avoidance goals also led to slightly upward comparisons, it appears to be how mastery-based goals are defined, rather than how these goals are valenced, that has the most powerful influence on participants’ social comparison direction. The present results contribute nicely to the still nascent empirical corpus on mastery-avoidance goals, which seem to be indicating that these goals, consistent with their hybrid nature of optimal (mastery) and non-optimal (avoidance) components, can have both positive (Guan, Xiang, McBride, & Bruene, 2006; Van Yperen, 2006; Van Yperen, Elliot, & Anseel, 2009) and negative (Cury et al., 2006; Elliot & McGregor, 2001; Karabenick, 2004) implications for self-regulation.

Finally, because performance-avoidance goals focus on negative normative possibilities, we expected them to produce a shift away from upward comparison towards downward social comparison, and this is precisely what we observed. Assuming, as is customary in the social comparison literature, that upward comparison is the default, our results indicate that the aversive focus of performance-avoidance goals led individuals away from upward comparison, presumably as a means of self-protection. This is consistent with past achievement goal research showing that performance-avoidance goals lead to self-protection based on self-handicapping strategies (Elliot & Church, 2003; Elliot, Cury, Fryer, & Huguet, 2006; Urdan & Midgley, 2001). Similarly, it is consistent with past social comparison research demonstrating that individuals avoid upward comparison for self-protection purposes (for reviews, see Brickman & Bulman, 1977; Gibbons et al., 2002; Suls & Wheeler, 2008). Prior social comparison research has also revealed several factors that interfere with the standard upward comparison tendency (e.g., low self-esteem, Smith & Insko, 1987; depression, Gibbons, 1986; failure feedback, Friend & Gilbert, 1973; Monteil & Huguet, 1999). In documenting that performance-avoidance goals led individuals away from upward comparison, Study 2 adds to this body of research.

**Future directions and limitations**

The shift that we observed away from upward comparison in Study 2 was not rooted in a failure event, as all participants received average performance feedback. Rather, this shift simply occurred as a result of an aversive focus on normative incompetence. Likewise, this shift did not occur in a high-cost (public) situation where mutual disclosure of performances or face-to-face contacts would be anticipated (Gibbons et al., 2002); rather, it occurred in a low-cost situation where participants selected their comparison target in private, after the experimenter left the room. In line with this reasoning, Gibbons et al. (2002) found evidence for considerable downward comparison after participants were confronted with failure feedback. In these more stressful circumstances, performance-avoidance goals may prompt most individuals to opt for downward comparison. This possibility merits attention in future research integrating achievement goals and social comparison behaviour.

A noteworthy aspect of our research is that it used two different social comparison paradigms, one focusing on individual differences in social comparison (Gibbons
and another focusing on unobtrusive social comparison behaviour (Wheeler, 1966). Both of these paradigms are well established in the social comparison literature (Buunk & Gibbons, 2007), and both produced distinct yet complementary data that, when considered together, yielded a more complete portrait of the link between achievement goals and social comparison than either paradigm could have provided alone. However, it is important to acknowledge that social comparison was made quite salient in our studies, which may have produced an implicit assumption that students should engage in social comparison. Future work would do well to examine the effect of performance-avoidance goals, and the $2 \times 2$ achievement goals more generally, in a setting in which social comparison information is available but not highlighted.

The present research contributes to the social comparison literature as well as the achievement goal literature. Our work follows the pioneering work of Butler (1993, 1995) in moving the focus of the social comparison literature from general motivational propensities to context-specific forms of goal pursuit. In doing so, it affords a greater precision of analysis by identifying the specific self-regulatory aims impelling social comparison behaviour in achievement situations. Importantly, our work also goes beyond that of Butler, in that it incorporates the approach-avoidance distinction, as well as the performance-mastery distinction, with regard to achievement goals. If we had not attended to this approach-avoidance distinction, we would not have been able to obtain clear results regarding the direction of social comparison, or may have simply been led to conclude that achievement goals per se lead to upward comparison. The approach-avoidance distinction is not only applicable to achievement goals, but also applies more broadly to self-based motivation (Elliot et al., 2000), and social comparison theorists, and self-theorists more generally, would do well to make use of this classic distinction accordingly.

In closing, until recently there has been a surprising lack of research conducted on the integration of the achievement goal and social comparison literatures (Suls & Wheeler, 2005). The present work has helped to address this oversight by establishing a connection between the most advanced model (the $2 \times 2$ model) in the achievement goal literature and the conceptual distinction (upward vs. downward comparison) that rejuvenated empirical work on social comparison in the 1980s, and that remains a core component of the social comparison literature (Gibbons et al., 2002). Both the achievement goal and social comparison literatures have grown increasingly complex over the years, and subsequent empirical work is needed to incorporate additional aspects of both areas of inquiry. For example, research on the following would be welcomed: the influence of achievement goals on assimilation and contrast in response to social comparison information (Pelham & Wachsmuth, 1995), the influence of achievement goals on temporal comparison processes (Alpert, 1977), and the influence of achievement goal complexes (i.e., goals in conjunction with their underlying motivation) on upward and downward social comparison (Elliot & Thrash, 2001). Continued integrative research of this nature holds promise to further enrich and extend the already generative achievement goal and social comparison literatures.

References


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