How did YOU do? Social comparison in secondary education
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Chapter 4

Comparison preferences after success or failure at high school

Abstract. The present study investigated whether students at high school reported a lower absolute preferred comparison level (PCL) after imagining a failure on a test (N = 1,770) than after imagining a success on a test (N = 1,794). In both conditions students indicated the preferred grade of the person with whom they would like to compare their answers on a school test. Comparing answers on a test suggests an opportunity for self-improvement. While controlling for grade point average, track, and gender, it was found indeed that students on average displayed a downward shift in PCL after failure, but that the PCL after failure was still relatively high. This was interpreted as being a self-protective strategy. In addition, an equal percentage of students in both conditions chose the highest possible grade as PCL. It was argued that these students experienced a strong self-improvement motive which prevented their PCL to decrease after failure. As a final result, low PCLs were reported by a larger percentage of students in the failure condition than in the success condition, and by a larger percentage of boys than girls. The highest PCL was also reported by a larger percentage of boys than girls, and by a decreasing percentage of students from the highest to the lowest track.

Introduction

Both actual failure at school and the anticipation or imagination of failure are often experienced by students as threatening. This is explained by the self-worth theory of achievement motivation (Covington, 1992), which holds that “the search for self-acceptance is the highest human priority” (p. 74), and that “in schools self-acceptance comes to depend on one’s ability to achieve competitively” (p. 74). Thus, according to this theory, students’ academic self-worth depends largely on their academic ability. Since failure under certain circumstances (e.g., after studying hard) is considered indicative of low ability, it is very

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important for a student’s self-worth to avoid academic failure or to create excuses for possible failure. Students use many different strategies to protect their self-worth from possible failure (e.g., Covington, 1992; Martin, Marsh, & Debus, 2001, 2003). Two well-known examples are defensive pessimism – i.e. setting low expectations in advance and thinking through potential bad outcomes before they occur (Norem & Cantor, 1986) – and creating excuses through self-protective self-handicapping – i.e. procrastinating, setting unattainable goals, chronically underachieving, admitting a minor personal weakness, withdrawing effort, et cetera. In the present study, it was assumed that the protection of self-worth after failure may also occur by changing one’s social comparison standard, i.e. one’s preferred comparison level.

**Preferred comparison level**

In social comparison research a lot of attention has been paid to people’s relative preferred comparison level (PCL). Within the school performance context, relative PCL refers to the performance level of a comparison target relative to one’s own performance level. Relative PCL is labeled ‘upward’ when it concerns a better performing target, and ‘downward’ when it concerns a worse performing target. In his well-known downward comparison theory Wills (1981) argued that, following a threat to their self-esteem or physical well-being, people would adopt a downward PCL, thus compare themselves with others performing worse than themselves, in order to feel better about themselves. This downward comparison theory received support from studies such as that of Levine and Green (1984) which showed that children whose performance declined displayed a stronger interest in downward comparisons than children whose performance did not decline. Indeed, Wills (1991) considered failure on a test a threatening situation to which downward comparison theory applied.

In 1994 Gibbons, Benbow, and Gerrard introduced an additional concept to relative PCL, namely absolute PCL, which, in the school performance context, is the performance level of the classmates that a student usually chooses for comparison. For example, if student 1 receives a C and compares him or herself with student 2 who receives a B, then ‘B’ is the absolute PCL of student 1. Research has shown that students display a downward shift in absolute PCL following academic failure, i.e. they lower their absolute PCL. For example, Gibbons et al. (1994) found a decrease in PCL over a period of three to six weeks among gifted male adolescents who performed worse than they had expected in an academic program for gifted students. A second study by Gibbons et al. found that both male and female college students who thought they had performed poorly academically also demonstrated a downward shift in PCL. Taking this one step further, Gibbons, Blanton, Gerrard, Buunk, and Eggleston (2000) showed that a change in PCL was related to future academic performance. More specifically,
these authors found that among college students a decrease in PCL had a negative influence on actual academic performance one semester later, while controlling for past academic performance. It should be noted that this downward shift in PCL is not necessarily the same as a downward comparison. As Gibbons et al. (1994) pointed out, a downward shift refers to a decrease in PCL without taking into consideration whether the PCL declines to a level that is actually lower than the self – that is what might be considered a ‘true’ downward comparison – or not. Especially in environments in which people are willing or able to strive for improvement after a failure (e.g., a classroom) it is not very likely that a downward shift will equal a decrease to the level of a true downward comparison (cf. Gibbons et al., 2002).

A downward shift in PCL can be considered a self-protective strategy. As Lane, Gibbons, Gerrard, Blanton, and Buunk (2002) argued, this strategy is intended to reduce the frequency of future negative comparison outcomes, i.e. a person will be less likely to experience comparison results that are unfavorable to the self. However, a downward shift does not necessarily imply changing from upward – unfavorable – comparisons to downward – favorable – comparisons. Instead, it can also imply changing from a more upward comparison to a less upward comparison. Therefore, in the present study a downward shift was interpreted as a strategy to reduce the amount of negative affect after future comparisons rather than a strategy to reduce the frequency of future negative comparison outcomes. In the face of failure, comparison with a high performing target can be quite threatening. That is, knowing that a comparison target performed much better than oneself may evoke unpleasant feelings. An adjustment of PCL by lowering it is thought to lead to less threatening comparisons, both instantly and in the future. That is, knowing that a comparison target performed only a little better or even worse than oneself may reduce unpleasant feelings considerably, and a lowering of PCL may also reduce the chances of unpleasant feelings after future failures. This preventive (ongoing) attempt to avoid the negative feelings after failure, which makes a downward shift a self-protective strategy (Gibbons et al., 1994, 2000) is different from the ad hoc and short-term alleviation of negative affect, which characterizes a downward comparison (Wills, 1991) and makes it a self-enhancement strategy (Gibbons et al., 1994; Wills, 1981, 1991).

In their study on the influence of a downward shift in PCL on future academic performance, and optimism as a possible moderator of this relationship, Gibbons et al. (2000) found that relative PCL was much less predictive of performance than was absolute PCL (for a more extensive discussion of absolute PCL versus relative PCL, see Gibbons et al., 2002). As a result, Gibbons et al. (2000) argued that students do not so much base their decision to compare with certain targets on the outcome of relating scores of those comparison targets to their own scores, but instead that they choose certain comparison targets because they have
done well or poorly in an absolute sense. Moreover, Gibbons et al. (2002) argued that methodologically the absolute PCL is more likely than the relative PCL measure to be sensitive to changes in comparison motives and habits. Therefore, Gibbons et al. (2000) recommended that “social comparison researchers, especially those interested in performance (e.g., in the classroom), use absolute [P]CL measures” (p. 646). An additional advantage of the use of absolute PCLs instead of relative PCLs is that the availability of absolute PCLs is not confounded with one’s own position on a particular dimension (Buunk & Gibbons, 2007). For example, in a school class a low performing student has more chances of choosing upward than downward comparison targets because of his or her own position on the performance dimension. To absolute PCLs this confound does not apply.

The present study and hypotheses

The goal of the present study was to test how an academic threat influenced students’ absolute PCLs. It was hypothesized that students’ absolute PCLs would be lower after imagining a failure than after imagining a success on a test – in other words, a downward shift in absolute PCL between experimental conditions was expected. However, PCLs in the failure condition were still expected to be reasonably high, because the fact that the present study took place in a school context, and the fact that students were asked to compare their answers on a test were expected to make students want to strive for self-improvement. That is, in a school context improvement of performance is important, and students have chances for compensating a failure on one test with a pass on a next test; the comparison of answers on a test may provide students with information useful for self-improvement. Needless to say, the answers of a high-performing target will provide more useful information for self-improvement than those of a low-performing target.

School performance provides an excellent context for imagining a failure or a success and for indicating a PCL since performance criteria at school are very unambiguous, i.e. it is very clear to students what constitutes a good and a bad performance on a school test. Students were asked to imagine a failure (receiving a D) or a success (receiving a B) on a school test, and to indicate the preferred grade of the person with whom they would like to compare their answers on the school test, i.e. their absolute PCL. It is quite likely that students who were in the failure condition knew how bad a D was, and that students in the success condition knew how good a B was. Also, indicating a PCL was unambiguous, i.e. students knew the ‘meaning’ of the grade they indicated. However, an imaginary failure or success may be more or less plausible to students, depending on their own performance at school. More specifically, for high-performing students imagining receiving a B may not be very hard, whereas thinking of
oneself as receiving a D might be more difficult. For low-performing students imagining receiving a D would be expected to be easier than imagining receiving a B. In order to control for this influence of school performance grade point average (GPA) was included in the analyses. In addition, track and gender were controlled for, because students from higher tracks may indicate higher PCLs than students from lower tracks, and boys and girls may differ with respect to PCL.

**METHOD**

**Procedure**

The present study was part of a large-scale longitudinal cohort study that was carried out among Dutch students from different tracks in secondary education. The Dutch secondary education system consists of five tracks in which students can graduate, which were denoted A (highest track), B, C, D, E (lowest track). In the present study, the three highest tracks were distinguished. The cohort started in September 1999 – in Dutch secondary education a school year starts in September and finishes in July – and continues for the duration of the school career, i.e. students are being followed until they finish full-time education.

The data collection for the present study took place before the summer holiday in 2002, only among students who had passed the first two years at high school and who thus were in grade 9 (USA). Each student filled out one of four partly overlapping versions of a questionnaire. These versions were distributed randomly among the students. One version applied to an imaginary failure condition, another version applied to an imaginary success condition, the other two versions were not relevant for the present study. In the imaginary success condition students received the following instruction: “Imagine that you have just received an 8.0 [USA: B] on a test.” In the imaginary failure condition students received a similar instruction: “Imagine that you have just received a 4.0 [USA: D] on a test.” Next, students answered a question about their PCL (for the exact formulation of this question see measures section below). Information about gender and track was obtained from the school administrations.

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2 This national cohort study in secondary education was supported by the Netherlands Organisation for Scientific Research (NWO) by awarding the research program ‘(Social-) psychological factors as determinants of educational attainment’ (grant number 411-21-703). This research program consisted of three PhD-dissertation projects studying the impact of (A) personality, (B) social comparison processes (reported in this dissertation; grant number 411-21-702), and (C) social networks on educational attainment, and one post-doctoral research project for the integration of these research lines.

The cohort study was carried out jointly by the Groningen Institute for Educational Research (GION) and Statistics Netherlands (CBS), which is the Dutch organization responsible for collecting, processing and publishing statistics to be used in practice, by policymakers and for scientific research.
The data collection was coordinated by Statistics Netherlands (for a description of the cohort study see, for example, Kuyper, Lubbers, & Van der Werf, 2003).

Participants

The sample of the present study consisted of 3,564 cohort students from tracks A, B, and C. The questionnaire for the imaginary success condition was distributed among 50.3% of these students; the questionnaire for the imaginary failure condition was distributed among 49.7%. Of the total sample 46.8% were boys. With regard to the three tracks, 33.1% of the students were in track A, 27.7% in track B, and 39.2% in track C. The mean age of the sample, measured before the summer holiday in 2002 when the data were collected, was 15.3 years ($SD = 0.4$).

Measures

*Grade point average (GPA)*

Students were asked to indicate their term results for several subjects (Zijssling, Kuyper, Lubbers, & Van der Werf, 2005). GPA was computed over a minimum of 8 out of 12 ‘theoretical’ subjects, namely Dutch, English, German, French, Geography, History, Economics, Social studies, Biology, Mathematics, Physics, and Chemistry. The more ‘practical’ subjects (Informatics, Technics, Arts, Social and life skills, and Gymnastics) were not included in GPA. Students were not required to follow all 12 theoretical subjects. Dutch grades range from 1.0 (very bad – USA: F) to 10.0 (excellent – USA: A); 5.5 is a pass [USA: C]; decimals are possible. The mean GPA was 6.7 ($SD = 0.7$, min = 4.3, max = 9.7). Due to missing GPA’s 32.0% of the students in track A were lost (16.8% among boys, 15.2% among girls), 13.7% in track B (7.3% among boys, 6.4% among girls), and 11.9% in track C (7.3% among boys, 4.6% among girls).

*Preferred comparison level*

After reading the scenario manipulation, students were asked: “With whom would you prefer to compare your answers?” They could answer this question by filling in “With someone who received a …..” Students were encouraged to indicate the exact grade, i.e. to one decimal, of their comparison target. Answers were given on a scale from 1.0 to 10.0. The response was 82.2%.
RESULTS

Descriptive results
As the two versions of the questionnaire were randomly distributed, the students in the success and failure condition should not differ in GPA. This indeed appeared to be the case (success condition: $M = 6.6$, $SD = 0.7$; failure condition: $M = 6.7$, $SD = 0.7$; $t(2839) = -0.34$, ns). The correlation between GPA and PCL was surprisingly low (overall $r = 0.12$, $p < .001$; track A: $r = 0.09$, $p < .01$; track B: $r = 0.05$, ns; track C: $r = 0.10$, $p < .01$). This means that there was a weak tendency that the higher a student’s GPA was, the higher his or her PCL was. GPA and gender were not correlated ($r = -0.03$, ns).

Comparison preferences after success or failure
To test the hypothesis that students’ absolute PCLs are lower after failure than after success, the effects of the control variables (GPA, track, and gender) and the predictor variable (condition) on PCL were tested in an analysis of covariance (ANCOVA). Track A, B, and C were dummy coded, track C being the reference category. Gender was dummy coded with boys being the reference category. The two experimental conditions were dummy coded with the imaginary success condition being the reference category.

As hypothesized, condition had a significant effect on PCL, $F(1, 2379) = 108.5$, $p < .001$, $\eta^2_p = 0.044$. Students in the imaginary success condition reported a higher PCL than students in the imaginary failure condition ($M = 8.1$, $SD = 1.6$ vs. $M = 7.4$, $SD = 2.1$), producing a Cohen’s $d$ (Cohen, 1988) of 0.39. With regard to the control variables, the results showed that GPA had a significant effect on PCL, $F(1, 2379) = 16.9$, $p < .001$, $\eta^2_p = 0.007$. The higher the GPA was, the higher the PCL was. The track A dummy also had a significant effect on PCL, $F(1, 2379) = 28.0$, $p < .001$, $\eta^2_p = 0.012$. Students from track A indicated a higher PCL than students from track C ($M = 8.1$, $SD = 1.9$ vs. $M = 7.5$, $SD = 1.9$). The track B dummy did not have a significant effect on PCL, $F(1, 2379) = 4.0$, ns, $\eta^2_p = 0.002$. Students from track B did not indicate a higher PCL than students from track C ($M = 7.6$, $SD = 1.9$ vs. $M = 7.5$, $SD = 1.9$). Gender did not have a significant effect, $F(1, 2379) = 0.0$, ns, $\eta^2_p = 0.000$ (boys: $M = 7.7$, $SD = 2.0$; girls: $M = 7.7$, $SD = 1.7$). For the sake of completeness, in additional analyses the two-way interactions between the control and predictor variables were also tested, but none of the interactions were significant.

Additional differences in comparison preferences
The median PCL in the success condition was 8.0, in the failure condition 7.8. Figure 1 shows the distribution of the PCLs from 1.0 to 6.0 in the success and failure condition; Figure 2
shows the distribution of the PCLs from 6.0 to 10.0 in both conditions. What becomes most apparent from the figures is that students had a clear preference for a PCL of 8.0 and 10.0: in both conditions, about 18.5% of the students indicated a PCL of 8.0, and, also in both conditions, about 18.0% of the students preferred to compare their answers with those of someone who received a 10.0 on the test. The differences between the conditions, genders, and tracks with respect to the percentages of students who indicated a PCL of 4.0 or lower, or a PCL of 10.0 were investigated (see Table 1). With respect to the PCL equal to or below 4.0, the most obvious difference was found between the two conditions: the percentage of students who indicated PCLs equal to or below 4.0 was larger in the failure condition than in the success condition (12.5% vs. 3.2%). Another obvious difference was that between boys and girls: the percentage of boys who indicated a PCL of 4.0 or lower was higher than the percentage of girls (9.1 vs. 6.7). With respect to the PCL equal to 10.0, the most obvious difference was found between the three tracks: the percentage of students who indicated a PCL of 10.0 decreased from track A to C (25.5% vs. 17.5% vs. 12.1%). There was also a difference between boys and girls: the percentage of boys who indicated a PCL of 10.0 was higher than the percentage of girls (21.5% vs. 15.4%).

Table 1 - Percentages of students who indicated a PCL equal to or below 4, or equal to 10 in each condition, both on average and per track

<table>
<thead>
<tr>
<th>Track</th>
<th>Boys</th>
<th>Girls</th>
<th>M</th>
<th>Boys</th>
<th>Girls</th>
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<tbody>
<tr>
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<tr>
<td>A</td>
<td>4.3</td>
<td>1.1</td>
<td>2.7</td>
<td>13.7</td>
<td>10.0</td>
<td>11.6</td>
<td>8.7</td>
<td>5.7</td>
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<tr>
<td>B</td>
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<td>2.3</td>
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<td>13.1</td>
<td>13.5</td>
<td>8.9</td>
<td>7.2</td>
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<tr>
<td>C</td>
<td>5.8</td>
<td>2.9</td>
<td>4.2</td>
<td>13.4</td>
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<tr>
<td>Average</td>
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<td>3.2</td>
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<td>28.6</td>
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<tr>
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<td>18.3</td>
<td>21.5</td>
<td>15.4</td>
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Figure 1 - Distribution of PCLs from 1.0 to 6.0 in the success and failure condition
Figure 2 - Distribution of PCLs from 6.0 to 10.0 in the success and failure condition
Discussion

In the present study, it was hypothesized that imaginary failure on a test at school would lead to a downward shift in PCL. However, as the study took place in an achievement context in which improvement after failure was possible, and as students were asked to indicate their PCL for the comparison of answers on a test – which should give them information that could be useful for improvement – it was also expected that the PCL after failure would still be relatively high, due to the self-improvement motive of students that would be activated. In addition, trying to judge the fairness of a received grade could cause PCLs after failure to be relatively high. The expectations of the present study were confirmed. Students who imagined a failure on a test at school on average indicated a lower PCL than students who imagined a success on a test, but this average PCL after failure was still relatively high. Overall, the lower PCL in the failure condition as compared to the success condition could be interpreted as a self-protective strategy intended to reduce the amount of negative affect after future comparisons.

Interestingly, it does not seem to be the case that students did not ‘dare’ to choose the highest possible comparison target after failure – indeed, about an equal percentage of students in each condition indicated the highest possible PCL. Of course, in an achievement situation comparing your answers with those of the person with the highest test score is most informative for future performance. Also, a reasonable percentage of students in the failure condition indicated a PCL equal to or below 4.0. These students might have been more interested in self-enhancement or self-evaluation than in self-improvement, which are all motives that can play a role in the comparison of academic performance (Wood, 1989). Indeed, results from Study 3 of Gibbons et al. (2002) indicated that high PCLs were related to an interest in self-improvement and low PCLs to an interest in self-enhancement. Based on these findings, in the present study it seems quite likely that the students who indicated the highest possible PCL had a strong sense of self-improvement that was not affected by the imagination of failure on a school test – as was supported by the equal percentage of students who indicated the highest possible PCL in each condition.

One could argue that choosing to see the answers of someone who received a 10.0 on a test merely in order to have access to all the right answers cannot be classified as social comparison. Wood (1996) defined social comparison as “the process of thinking about information about one or more other people in relation to the self” (p. 520), where “in relation to the self” implies, if only to a minimal degree, looking for or identifying a similarity or a difference between the other and the self on some dimension”. According to this definition, the above example from
the present study might not be considered social comparison since any search for a similarity or a difference between the target and oneself seems to be absent: someone may simply choose a classmate with a 10.0 to obtain the answers from, because they are not provided by other – more ‘objective’ – sources (e.g., a teacher, Google). On the other hand, it should be pointed out that a comparison process may be necessary in order to find out who has a 10.0 in the first place. Moreover, according to Festinger (1954) comparison of abilities with other people takes place when objective, non-social means are not available. The fact that a student may turn to a classmate due to the absence of more objective sources seems to be in line with Festinger’s conception of social comparison, even though Festinger referred to the type of information that people obtain, whereas in the present study it concerns the means by which information is obtained.

In addition to testing whether imaginary failure on a test at school would lead to a downward shift in PCL, the differences between the conditions, genders, and tracks with respect to the percentages of students who indicated a PCL of 4.0 or lower, or a PCL of 10.0 were investigated. It was found that the percentage of students who indicated PCLs equal to or below 4.0 was larger in the failure condition than in the success condition, and that the percentage of boys who indicated a PCL of 4.0 or lower was higher than the percentage of girls. The percentage of boys who indicated a PCL of 10.0 was also higher than the percentage of girls. Moreover, the percentage of students who indicated a PCL of 10.0 decreased from track A to C. Although no hypotheses were specified about differences between the conditions, genders, and tracks, with respect to the PCL equal to 10.0, it would be reasonable to expect that the percentage of students who indicated a 10.0 would decrease from track A to C, assuming that self-improvement is most served by a PCL equal to 10.0, and that this striving for self-improvement is stronger in the higher tracks than in the lower tracks. This difference between the tracks was found indeed. Expectations about a gender difference in the choice of a PCL equal to 10.0 are less unequivocal, since research on gender, achievement motivation and achievement goals has shown mixed results, indicating either no gender differences or gender differences along stereotypical lines (Hyde & Durik, 2005).

In the present study, some indication was found that the higher students performed at school, as indicated by their GPA, the higher the PCL was that they reported. This is in line with findings from Gibbons et al. (2002) showing the same positive, though stronger, relationship between (academic) performance and PCL (Studies 1 en 3). Thus, it seems to be the case that even though quite a few students indicate extreme PCLs there also is a weak tendency to indicate PCLs closer to one’s own performance level. Of course self-evaluation at school is an
important motive for comparing academic performance. A PCL is more informative for self-evaluation when it is closer to one's own performance than when it is further away.

The present study showed that PCLs differed as a result of an imagined failure at school. However, the present study does not provide information on whether a student's self-evaluation also changed as a result of the manipulation. In principle, there are two possible explanations for a lowering of PCLs in the failure condition: 1) students' self-evaluations remained the same, but students indicated PCLs closer to their unchanged self-evaluations, 2) students felt worse about their own capacities after imagining a failure than after imagining a success, and therefore adjusted their PCLs while perhaps not even decreasing the difference between their own position and their PCL. For future research it would be interesting to test whether PCL is merely lowered as a result of a decrease of one's self-evaluation, or whether the lowering of PCL is an effect in and of itself. Furthermore, in the present study no control group was included. Therefore, it is not possible to tell in exactly which condition the PCL changed as a result of the manipulation. Future research should include a control group in order to indicate under what circumstances the changes in PCL are taking place.

Changes in PCL might be influenced by achievement goal orientations. This expectation is based on research on self-protective self-handicapping that has related this self-protective strategy to achievement goal orientations. In achievement goal research typically a distinction is made between mastery oriented individuals who are concerned mainly with gaining competence at a task and developing new skills, and performance oriented individuals who are concerned with outperforming others and with being judged able (Ames & Archer, 1988). Martin et al., (2003) argued that mastery-oriented individuals interpret failure as reflecting on their effort rather than on their ability and therefore do not feel so threatened by failure, while performance-oriented individuals do feel threatened because they interpret failure as indicative of a lack of ability. Accordingly, Martin et al. reasoned that mastery-oriented individuals would show less self-protective self-handicapping than performance-oriented individuals. Indeed, these researchers found that among university students a task orientation, which is conceptually similar to a mastery orientation (Ames & Archer, 1988), was negatively related to self-protective self-handicapping and defensive pessimism, whereas a performance orientation was positively related to these self-protective strategies. Similarly, for a basketball dribbling task Elliot, Cury, Fryer, and Huguet (2006) found that performance-avoidance goals, which focus on avoiding the demonstration of normative incompetence, were related to higher levels of behavioral and self-reported self-handicapping than performance-approach goals, which focus on demonstrating normative competence, and mastery goals. For future research it would be interesting to relate achievement goals to decreases in PCLs, because the downward shift may
only be found for students with a performance (avoidance) goal and not for students with a mastery goal. Moreover, the percentage of students indicating a PCL equal to 10.0 would be expected to be higher for mastery oriented students than for performance oriented students.

To conclude, despite some limitations the present study shows that even after a weak manipulation of imagining a failure students show a self-protective reaction. Interestingly, there was still a group of students who chose the highest possible comparison target – and who thus did not seem to be affected by the imagination of a failure – but the size of this group decreased as the track level decreased. There is a task reserved for future research to uncover the motives of this group of students for indicating the highest PCL even in the face of failure, and to compare their future performance with that of other students in order to tell whether their strategy is beneficial for performance. Research should also investigate how persistent students are in indicating the highest PCL after imagining repeated failures.