How did YOU do? Social comparison in secondary education
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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2008

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):
CHAPTER 6

General discussion

By the time students in Western society enter high school social comparison has become an integral part of school life, partly as a result of an increasing concern with academic performance. Attending to peers’ work can serve to evaluate students’ own performance and thus to reduce uncertainty about how they are doing at school. In addition, information on classmates’ performance can be useful for self-enhancement, i.e. to feel better about one’s performance, or for self-improvement, i.e. to improve one’s performance. The question is, however, whether, and how, this attending to classmates’ performance affects students’ own academic performance. How is one’s own performance influenced by knowing that a classmate performed better or worse? The present dissertation attempted to shed light on this issue by investigating comparison choice and comparative evaluation in a naturalistic setting. In the present chapter a summary of the findings is presented together with a discussion of the strengths and limitations of Chapters 2 to 5. Some concluding remarks will close the chapter.

SUMMARY OF THE FINDINGS

The long-term effect of social comparison in secondary education

In Chapter 2, the influence of comparison choice and comparative evaluation on academic performance over a period of two years was assessed. Chapter 2 constituted an elaboration of work by Blanton, Buunk, Gibbons, and Kuyper (1999) and Huguet, Dumas, Monteil, and Genestoux (2001) and attempted to obtain a more precise picture of the strength of the influence of comparison choice and comparative evaluation on academic performance in the long term. Upward comparison and a favorable comparative evaluation were expected to have a positive effect on academic performance. Following the Blanton et al. (1999) paradigm, comparison choice was measured objectively. That is, contrary to many studies on social comparison, students were not asked to indicate whether they compared with better or worse performing classmates, but rather they were asked to indicate the name of the classmate with whom they preferred to compare their grades in general. Subsequently, the direction of the comparison was determined objectively by relating students’ test scores to those of their comparison targets. Students were also asked to indicate their comparative evaluation. In
Chapter 2, as a measure of academic performance the scores on standardized tests for reading comprehension and mathematics were used. It was shown that, while controlling for earlier academic performance, comparison choice and comparative evaluation still influenced academic performance two years later. That is, the more upward or the less downward students compared themselves, the higher their academic performance was two years later, and the more favorable their comparative evaluation was, the higher their academic performance was. Expanding and qualifying previous research, comparing upward appeared only beneficial for students with a favorable comparative evaluation, presumably because challenging goals are mainly attained when one believes in one’s own ability.

**Academic performance is related to the interpretation of social comparison**

In Chapter 3, it was tested whether social comparison at school led to different responses, depending on the interpretation of the social comparison information. Moreover, it was examined whether these different responses were related to academic performance. Based on Buunk, Collins, Taylor, Van Yperen, and Dakof (1990), in Chapter 3 it was expected that among students basic responses to social comparison could be empirically distinguished, regardless of the direction (upward vs. downward) of the comparisons. Indeed, three types of responses to social comparison were distinguished: empathic, constructive, and destructive response, which occurred for upward as well as downward comparisons. In line with previous research, girls scored higher on empathic response and boys scored higher on destructive response (Buunk, Kuyper, and Van der Zee, 2005). Also in line with previous findings, students who had a high social comparison orientation (SCO) scored higher on all three types of responses than students who expressed a low SCO (e.g., Buunk, Zurriaga, Gonzalez-Roma, & Subirats, 2003; Buunk, Zurriaga, Peiró, Nauta, & Gosalvez, 2005). Next, it was tested whether the three responses were related to academic performance. As in Chapter 2, the scores on standardized tests for reading comprehension and mathematics were used as a measure of academic performance. It appeared that, after controlling for previous performance, a destructive response was negatively related to performance on both tests. An empathic response was positively related to performance on reading comprehension, whereas a constructive response was not related to performance on either test. Instead, a constructive response weakened the negative relationship between destructive response and reading comprehension. Stating the above results in other words, students who reported a high destructive response to social comparison received lower test scores for reading comprehension and mathematics than students who reported a low destructive response. In contrast, students who reported a high empathic response received higher test scores for reading comprehension than students who reported a low empathic response – although this
effect of empathic response was weaker than the effect of destructive response and therefore was not found when the relationships of the three response factors with performance were assessed simultaneously. Finally, students who reported a high destructive response performed worse than students who reported a high destructive response but also reported a high constructive response. In addition, boys only performed better than girls on mathematics when the influence of destructive response was eliminated. In sum, basic responses to social comparison were empirically distinguished and were found to be related to academic performance. Negative thinking appeared to be particularly related to academic performance.

**Comparison preferences after success or failure at high school**

In Chapter 4, it was tested whether students would lower their preferred comparison level (PCL) after an imagined failure. Since students largely derive their academic self-worth from their academic performance (Covington, 1992), failure at school is often experienced as threatening to students’ academic self-worth. Students use many different strategies to protect their self-worth from possible failure (e.g., Covington, 1992; Martin, Marsh, & Debus, 2001, 2003). In Chapter 4 it was assumed that the protection of self-worth after failure may occur by changing one’s social comparison standard, i.e. one’s preferred comparison level. It was expected that students who were asked to imagine a failure on a school test – receiving a 4.0 [USA: D] – would indicate a lower preferred grade of the person with whom they would like to compare their answers on the school test, i.e. their absolute PCL, than students who were asked to imagine a success on a school test – receiving an 8.0 [USA: B]. After controlling for grade point average, track, and gender, it was found indeed that students on average displayed a downward shift in PCL after failure. However, the PCL after failure was still relatively high, perhaps due to the fact that the present study took place in a school context, and the fact that students were asked with whom they would prefer to compare their answers on a test, which might both have activated a striving for self-improvement. In addition, it was found that an equal percentage of students in both conditions chose the highest possible grade as PCL, presumably due to their strong self-improvement motive which prevented their PCL from decreasing after failure. Investigation of differences between the conditions, genders, and tracks with respect to the percentages of students who indicated a PCL of 4.0 or lower, or the highest PCL, i.e. 10.0, showed that more students in the failure condition than in the success condition indicated a PCL of 4.0 or lower, and that more boys than girls indicated a PCL in this range. Similarly, more boys than girls indicated a PCL of 10.0. Moreover, the percentage of students who indicated a PCL of 10.0 was higher in the higher tracks than in the lower tracks. In sum, although some students’ PCL seemed unaffected by imagining a failure, on average
students lowered their PCL after an imagined failure, presumably in order to protect their academic self-worth.

**Illusory superiority and inferiority at high school**

In Chapter 5, it was tested whether long-term academic outcomes of students who engaged in illusory superiority or inferiority in their first year at high school differed from those of students with a more or less accurate estimation of their relative academic standing. From previous research it appears that, even though correct opinions and accurate appraisals of one’s abilities are important (Festinger, 1954), people seem to overestimate, and sometimes underestimate, themselves on many dimensions. Although with regard to academic ability on average such cognitive illusions do not seem to occur in classrooms, in Chapter 5 it was assumed that there would still be a particular group of students who overestimated or underestimated their academic performance compared to that of classmates, that is, their academic comparative evaluation. Indeed, by relating students’ subjective comparative evaluation score to their objective academic performance score first-year high school students who engaged in illusory superiority or illusory inferiority were identified. It appeared that cognitive illusions occurred more frequently in some groups than in others. More precisely, boys engaged more in illusory superiority than girls. Also, both illusory superiority and illusory inferiority occurred more frequently among students from the lower tracks recommended by primary school and among students from lower SES levels than among students from the higher recommended tracks and from the higher SES levels. With regard to ethnic background it appeared that students from all foreign ethnic groups, but especially the Turkish and Moroccan students, engaged more in illusory superiority than did Dutch students. The central hypotheses of Chapter 5 were that dropout rates would be lower among students engaging in illusory superiority than among students with correct comparative evaluations, and that students’ progress through secondary education would benefit from engaging in illusory superiority, while, on the contrary, dropout rates were expected to be higher among students engaging in illusory inferiority than among students with correct comparative evaluations, and that students’ progress through secondary education would suffer from engaging in illusory inferiority. After controlling for the track recommended by primary school, academic performance, gender, socio-economic status, and ethnic background, it was found indeed that illusory superiority was associated with lower dropout rates and with better progress through high school over a period of three to six years. In contrast, illusory inferiority was associated with higher dropout rates and with worse progress through high school. Thus, it appears that what may start off as an illusion becomes reality over time.
Comparison choice

Three chapters of the present dissertation focused on comparison choice. In Chapter 2 it became clear that comparison choice has a longer lasting impact on students’ academic performance than had been demonstrated previously. Although previous research had already shown that comparison choice has a positive effect on school grades (Blanton et al., 1999; Huguet et al., 2001), this influence had only been investigated over a short period of time in students’ first year at high school – a transition period during which social comparison information can be expected to be particularly important to students. For this reason, Blanton et al. expressed their doubt about the strength of the effect in later school years. Chapter 2, however, extended past research by showing that comparison choice is also relevant for academic performance after students’ first year at high school, i.e. when the school environment is less ambiguous and more familiar. This does not imply that a single instance of comparison with a particular classmate influences academic performance two years later. However, what is assumed in Chapter 2 is that this instance of comparison choice represents a structural way of comparing oneself as a means of goal setting. Some students will structurally set higher goals by comparing upward, while other students will set lower goals by mostly comparing downward. Comparison with a particular classmate is not restricted to a single instance, but is expected to occur repeatedly. Although Huguet et al. explained the fact that they only found effects of comparison choice on academic performance in two cross-sectional designs and not in their longitudinal design by suggesting that participants changed their comparison targets over time, in the present dissertation it is assumed that, as far as students did change their comparison target over the course of the first years at high school, the direction in which students compare themselves is quite stable. This assumption is supported by Huguet et al.’s finding that when students were asked to indicate two comparison targets at two points in time, at both instances on average both comparison choices were upward for most courses. Thus, students seem to have a more or less stable tendency to compare upward or downward. Of course, the present dissertation provides no direct evidence for such a tendency as the stability of comparison choices over the years was not measured. Nevertheless, Chapter 2 extended past research by demonstrating that social comparison does influence academic performance later in high school.

Chapter 3 added to the findings of Chapter 2 that not only the direction of comparison is related to academic performance, but also the interpretation of social comparison information. Thus, Chapter 3 seems to qualify the conclusion of Chapter 2 in that upward comparison does not seem to be beneficial for academic performance under all circumstances, nor does downward comparison seem to be relatively detrimental for academic performance in all
situations. Based on Chapter 3 one could suggest that the positive effect of an upward comparison may occur or may be enhanced when the social comparison information is interpreted in an empathic way and may be absent or diminished when the social comparison information is interpreted in a destructive way. Similarly, the negative effect of a downward comparison may be reduced when the social comparison information is interpreted in an empathic way and may be enhanced when the social comparison information is interpreted in a destructive way. For this qualification of the results of Chapter 2, a causal relationship between responses to social comparison information and academic performance is required. However, causal conclusions on this relationship cannot be drawn on the basis of Chapter 3, since the responses to social comparison were not measured together with the comparison choices in grade 7, but instead at the same time as academic performance was measured in grade 9. Future research could answer the question whether reactions to social comparison information influence the effects of upward and downward comparisons on academic performance by combining T1 upward and downward comparisons with T1 reactions to social comparison information into one study.

Notwithstanding the positive effect of more upward and less downward comparison on students’ academic performance, Chapter 4 seems to nuance this finding by showing that students do not choose high-performing targets no matter what. Instead, the interpretation of the downward shift in Chapter 4 is that students adjust their comparison choices to their own performance in achievement situations. More specifically, on average students may not choose comparison targets of a constant performance level, but let the performance level of their comparison targets depend on their own academic failure or success, that is, students’ PCL decreases after failure. This may serve a self-protective goal, and even though Chapter 2 showed that a higher performance level of a comparison target leads to a higher own academic performance, in the long run it may be wiser to lower one’s PCL when facing failure in order to reduce the chances of unpleasant feelings after future failures rather than sticking to one’s original higher PCL.

**Coexistence of the BFLPE with the positive effects of upward comparisons**

Although previous studies (Blanton et al., 1999; Huguet et al., 2001) and results from the present dissertation suggest that upward comparisons are beneficial for academic performance, this seems to contradict findings of a well-established line of research on social comparison in the classroom that was mentioned in the introductory chapter. Research on the Big-Fish-Little-Pond-Effect (BFLPE) has repeatedly shown that attending a school with a high average ability level goes together with negative consequences for academic self-concept and long-term
academic performance (e.g., Marsh, 1987, 1991; Marsh, Kong, & Hau, 2000). Wheeler and Suls (2005) raised the question of how the occurrence of the positive effect of upward social comparison on academic performance (Blanton et al.; Huguet et al.) can be reconciled with the negative effect of upward social comparison on academic self-concept typically found in BFLPE research. Seaton et al. (2006) responded to this challenge by re-analyzing the Blanton et al., and Huguet et al. data. Though not optimally designed to test the BFLPE, the data showed that both effects can coexist (see also Chanal & Sarrazin, 2007, for the same conclusion in the domain of physical education). Based on Stapel and Suls (2004), who noted that explicit comparisons produce assimilation, and implicit comparisons result in contrast, Seaton et al. suggested that the fact that in the Blanton et al. and Huguet et al. studies students were explicitly asked to select a comparison target, while in the BFLPE studies comparisons with the class- or school-average ability are implicit might explain the seemingly conflicting results. Furthermore, Seaton et al. suggested that pre-existing individual differences, such as achievement motivation, that lead a person to choose someone as a comparison target may be more important in determining performance than the actual comparison. Of course, one additional difference between the comparison with classmates as assessed in the present dissertation and comparison with a school’s average ability level as in the BFLPE studies is that in the present dissertation students’ decisions to compare themselves with specific classmates were voluntary whereas comparison in the BFLPE paradigm is imposed onto students.

COMPARATIVE EVALUATION

Two chapters of the present dissertation focused on comparative evaluation. In Chapter 2, it became clear that comparative evaluation has a longer lasting impact on students’ academic performance than had been demonstrated previously. Similar to the effect of comparison choice, the influence of comparative evaluation had only been investigated over a short period of time in students’ first year at high school when social comparison information may be particularly important (Blanton et al., 1999; Huguet et al., 2001). Chapter 2, however, extended past research by showing that comparative evaluation is also relevant for academic performance after students’ first year at high school. In Chapter 5, academic outcomes of students with rather extreme unrealistic comparative evaluations – either illusory superiority or illusory inferiority – were compared with those of students with correct comparative evaluations. The results of Chapter 5 suggest that the conclusion of Chapter 2 – the more favorable one’s academic comparative evaluation the higher one’s academic outcomes – even applies to students with unrealistic comparative evaluations since students engaging in illusory superiority showed lower dropout rates and better progress through high school than students
with correct comparative evaluations, while students engaging in illusory inferiority showed higher dropout rates and worse progress than students with correct comparative evaluations.

One may argue that the effect of cognitive illusions on academic outcomes, which was the focus of Chapter 5, was already tested in Chapter 2 by controlling for T1 academic performance in the regression of T2 academic performance on T1 comparative evaluation. After all, it would seem that, when academic comparative evaluation is controlled for true performance, what is left is cognitive illusion. This would mean that the conclusion of Chapter 2 should not be that the more favorable one’s academic comparative evaluation is the higher one’s academic outcomes are, but rather that the more unrealistic one’s academic comparative evaluation is the higher one’s academic outcomes are. However, this conclusion does not seem warranted for two reasons. First, in Chapter 2 no distinction was made between students with cognitive illusions and those with realistic perceptions. Since the group of students identified as engaging in cognitive illusions in Chapter 5 was relatively small it does not seem plausible that this group could have driven the effect of Chapter 2. In other words, the majority of students in Chapter 5 reported a more or less correct comparative evaluation, and thus including many of these students in Chapter 2 warrants conclusions in this chapter to be drawn on the effect of comparative evaluation in general instead of on the effect of cognitive illusions. Second, conclusions on cognitive illusions could not be drawn on the basis of Chapter 2, since no distinction was made between illusory superiority and illusory inferiority. These two illusions have opposite effects, and thus combining them would lead to meaningless results.

Strengths and limitations of the present dissertation

Besides the strengths and limitations that are specific to the separate studies of the present dissertation and that therefore are discussed at the end of each chapter, several studies share common features that can be considered strengths or limitations of the present dissertation in general. These features are discussed below.

Naturalistic setting

One of the most central characteristics of the present dissertation is that all studies took place in a naturalistic setting which provided the opportunity of gaining insight in and understanding of relationships between variables in the real world. Of course, in naturalistic studies the disadvantage is that the influence of factors other than the ones one intends to measure is much more difficult to control, but one of the strengths of the present dissertation is the external validity of the findings that have been presented.
Objective measures

Even though the influence of factors other than the ones one intends to measure is inherent to naturalistic studies, characteristic of the present dissertation is that, by using objective measures such as standardized tests and the ladder variable, an attempt was made to make sure that findings were not erroneous. For example, in several chapters scores on standardized tests were used as the measure of academic performance instead of school grades. As was explained in Chapter 2, school grades are partly influenced by the teacher assigning them. In order to rule out any bias because of these possible teacher influences, Chapters 2, 3, and – partly – 5 used scores on standardized tests as measures of academic performance. In addition, Chapter 5 used scores on a modified version of the ladder variable as an objective indication of academic outcomes. As a result, conclusions on the relationship between social comparison and academic performance could be drawn with greater confidence.

Another objective measure that is characteristic of the present dissertation is the operationalization of comparison choice in Chapter 2. Students were not asked to indicate whether they compared themselves with better or worse performing classmates, but rather they were asked to indicate the name of the classmate with whom they preferred to compare their grades in general. Subsequently, the direction of the comparison was determined objectively by relating students’ test scores to those of their comparison targets. This is considered one of the strengths of the present dissertation. One could argue that a subjective measure would have been preferable, because students neither knew their own test score nor that of their comparison target and thus they might not have been aware of the direction of their comparison. However, the test scores should be considered to be representative of students’ daily academic performance and it seems likely that students were more or less aware of the performance level of their comparison target. Thus, the objective measure for comparison choice ruled out the influence of subjective factors and provided a more precise and sound basis for drawing conclusions about the effects of upward and downward comparisons.

Related, although the results of Chapter 2 were interpreted in terms of relative PCL, i.e. upward and downward comparisons, in the analyses of Chapters 2 and 4 absolute PCL, i.e. score of the comparison target, was used. As outlined in Chapter 4, absolute PCL has several advantages over relative PCL, such as that it is more predictive of performance (Gibbons, Blanton, Gerrard, Buunk, & Eggleston, 2000), more likely to be sensitive to changes in comparison motives and habits (Gibbons et al., 2000), and that it is not confounded with one’s own position on a particular dimension (Buunk & Gibbons, 2007). In sum, the objective measures that were applied warrant confidence in the conclusions drawn in the present dissertation.
Sample size and effect sizes

One of the characteristics, and strengths, of the present dissertation is the large size of the samples on which data were obtained (5,426 students in Chapter 2; 1,500 students in Chapter 3; 3,564 students in Chapter 4; and 8,180 students in Chapter 5). Of course, conclusions based on large samples can be drawn with more confidence than conclusions based on small samples. The other side of the coin of these large samples is, however, that effects very easily become significant. Notwithstanding the confirmation of most of the hypotheses of the present dissertation, the effects appeared to be quite small, partly as a result of control variables that correlated moderately high with predictor and criterion variables, partly as a result of possible disturbing influences that are inherent to the naturalistic nature of the studies, and partly simply because the influence of the investigated predictor variables in real life may be modest. Due to the small effect sizes in the present dissertation, special attention should be paid to the consistency of the effects.

Theoretical and practical implications

The major contribution of the present dissertation to existing research is of a theoretical kind. Although social comparison has been a topic of substantive investigation among researchers interested in psychological processes at school, most of the research has focussed on age-related shifts in children's use of and motives for social comparison (e.g., Butler, 1989b, 1996; Butler & Ruzany, 1993; Feldman & Ruble, 1977; Frey & Ruble, 1985; Ruble, Boggiano, Feldman, & Loebl, 1980; Ruble, Feldman, & Boggiano, 1976), and on the consequences of social comparison for students' self-concept (e.g., Marsh, 1987; Marsh & Hau, 2003; Marsh, Köller, & Baumert, 2001; Marsh, Kong, & Hau, 2000; Marsh & Parker, 1984). Relating social comparison to subsequent academic performance is a relatively recent development in social comparison research in the school context. Within this focus on academic performance, each chapter of the present dissertation contributes to existing research in its own way. Chapter 2 confirmed results from earlier studies showing that upward comparison choice and favorable comparative evaluation have a positive effect on academic performance (Blanton et al., 1999; Huguet et al., 2001), and extended these studies by showing that these effects are even found over a period of two years instead of three months. In addition, Chapter 2 extended previous studies by showing that upward comparison was only beneficial for students with a favorable comparative evaluation. Chapter 3 confirmed the existence of basic responses to social comparison (Buunk, Kuyper, & Van der Zee, 2005), and was the first to relate the effects of these responses to academic performance in a predictive way. Chapter 4 replicated the downward shift in PCL that was found in earlier studies (e.g., Gibbons, Benbow, & Gerrard,
1994; Gibbons et al., 2000), but its major theoretical contribution was the finding that this downward shift even occurred after a weak manipulation of merely imagining a failure at school. Imagination manipulations have repeatedly been shown to influence participants in laboratory settings. However, to find an effect of such a weak manipulation that was unobtrusively included among a host of other questions in a questionnaire and filled out in a naturalistic setting is quite remarkable. Chapter 5 extended previous research in two important ways. First, by identifying cognitive illusions on the basis of objective measures conclusions on the effects of cognitive illusions were more valid than those of previous studies in which illusory superiority seemed to be equated with high self-esteem and the focus was on the occurrence of an average cognitive illusion in a sample instead of on distinguishing between people with illusions and people with realistic perceptions (Taylor & Brown, 1988). Second, relating cognitive illusions to subsequent academic outcomes constituted an innovative step. As far as cognitive illusions had previously been investigated in the school context, the focus was on their occurrence rather than on their effect on academic performance (e.g., Blatchford, 1997; Kuyper, Dijkstra, Buunk, & Van der Werf, 2008).

Although the findings of the present dissertation provide insight into social comparison processes in the classroom, their usefulness for people in the field, such as teachers and parents, is quite limited. Practitioners should be aware of the fact that scientific results cannot automatically be extended to practical situations. Although the present dissertation is characterized by a high external validity, the small effect sizes warrant caution in the formulation of practical implications. The effects are not large enough to justify advices to parents and teachers as to whether they should actively encourage children to, for example, compare upward or not. Nevertheless, the present dissertation contributes to the ongoing discussion about whether comparison of one’s grades at school with others is good or bad. As Levine (1983) pointed out, it has generally been assumed that comparison of grades at school, in particular upward comparison, is rather bad than good. Although recommendations such as actively encouraging children to compare upward on the basis of the results of the present dissertation are not warranted, the present findings show that the comparison of grades at school does not necessarily have negative consequences and may even be beneficial for academic performance.

**Final conclusion**

The value that is attached to academic performance by Western society, and also many non-Western societies, leads students to be concerned with their school performance, and evokes a need for evaluating how they are doing at school. One way to obtain this evaluative
information is by engaging in social comparison. The central question of the present
dissertation was, however, whether social comparison in turn affects academic performance
itself. From the present results it can be concluded that the choice of a specific classmate as a
comparison target indeed influences academic performance, and may not only be used for
evaluating one’s performance, but also as a means of goal setting. In general, both comparison
with a high performing classmate as well as a favorable comparative evaluation, whether
realistic or not, are beneficial for a student’s own academic performance. Comparison with
high performing classmates leads to increased own performance, even though this may depend
on whether the social comparison information is interpreted in an empathic or destructive way.
Notwithstanding these positive effects, one should be careful to interpret the results of the
present dissertation as suggesting that parents and teachers, in their focus on academic
performance, should use encouragement to compare upward and to have a favorable
comparative evaluation as a means for their children to obtain higher grades. Instead, the
present dissertation complements existing research on social comparison in laboratory settings,
and research in the school context that has focused on the development of social comparison
among children, by providing insight in the influence of social comparison in the daily lives of
students at high school.