

## Affective Response to Social Comparison in the Classroom

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In a study among 609 secondary school students, the affective reactions to social comparisons of grades were examined. Overall, the students reported more frequent responses to upward than to downward comparison, more identification than contrast in their comparisons, and more frequent responses implying a self-focus than an other-focus. The most frequent response was self-focused identification with an upward comparison target, that is, the hope that one might in the future receive a good grade similar to that of the target. In general, girls showed more altruistic and empathic responses, and boys more egocentric and hostile responses to social comparison. Those with a low performance level responded more often to downward comparison with the fear that they would receive a similar low grade on a next test.

Because children spend a lot of their time at school, the school environment is an important place for learning and for making friends. The norms at school, and especially in the classroom, determine what behavior is considered appropriate and what performance is considered a good performance. To find out what these norms are, students will often engage in social comparisons. By comparing their behavior and performance with those of others, students may obtain an idea about how appropriate their behaviors are and how good their performance is. *Social comparison* may be defined as a process of thinking about social information (i.e., information about others), real or constructed, with respect to the self (Wood, 1996). Social comparison may play an important role in classrooms because it is in this context hard not to compare oneself with others. Indeed, students are constantly confronted with others of the same age who provide, for example, social comparison information about grades, performance in sports, or physical attractiveness.

In general, as classic social comparison theory would suggest (Festinger, 1954), children at school tend to compare themselves with similar others. For example, Meisel and Blumberg (1990) found that students showed a preference for comparison with classmates of the same gender and race. In this study, social comparison was measured with a computer-based auditing procedure that allowed each student to

audit the classroom performance of all other students. Also, Blanton, Buunk, Gibbons, and Kuyper (1999), and Huguet, Dumas, Monteil, and Genestoux (2001) found that a large majority of students who were asked to name the classmate(s) with whom they compared their scores on a variety of subjects mentioned peers of the same gender.

Whereas research on social comparison originally focused on the factors determining the *choice* of the comparison target, in the past decades the attention has shifted more to the *responses* to social comparison. The way in which students respond to social comparison with their classmates may have important consequences for their motivation and satisfaction (cf. Marsh, 1993). For example, responding with negative feelings to social comparisons may lead to frustration and a lack of ambition. Despite this apparent importance of the responses to social comparison in the classroom, virtually no research has addressed this issue. In this research, which used as participants high school students, we examined the occurrence of a variety of affective responses to social comparison. A total of eight responses were identified, depending on the direction of comparison, the framing of the comparison, and the focus of the comparison. The central issue in this research was how frequent the various affective responses to social comparison were and how these depended on performance level and on gender. Although this research was conducted before the publication of Smith's (2000) chapter, the theoretical rationale behind our research is similar to the model outlined by Smith. According to both approaches, there are three dimensions that underlie the affective responses to social comparison: (a) up-

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TABLE 1  
Affective Responses in the Present Research and  
in Smith's Model (2000)

Comparison Type	Present Research	Smith (2000)
Upward		
Identification		
Self-focus	Hope	Optimism
Other-focus	Sympathetic enjoyment	Admiration
Contrast		
Self-focus	Frustration	Depression/shame
Other-focus	Resentment	Resentment
Downward		
Identification		
Self-focus	Worry	Fear/worry
Other-focus	Compassion	Pity
Contrast		
Self-focus	Relief	Pride
Other-focus	Contempt	Contempt/scorn

ward versus downward, (b) contrast versus identification (or *assimilation* in Smith's model), and (c) focus of attention on the self or to the other (see Table 1). Although there are some differences between both approaches in the labels of the affective responses, in general the assumed responses are rather similar. For example, in both approaches a contrastive response to upward comparison with the focus of attention on the favorable situation of the other is assumed to be characterized by resentment, and an identifying or assimilative response to downward comparison with the focus on the potential unfavorable implications for oneself is assumed to be characterized by worry.

### AFFECTIVE RESPONSES TO SOCIAL COMPARISON

As is common in the social comparison literature, we assumed that the occurrence of the various affective responses depended on the direction of comparison, which can be either upward or downward. A comparison is upward when one compares oneself with someone who performs better than oneself, whereas a comparison is downward when one compares oneself with someone who performs worse than oneself. Inspired by Festinger's (1954) seminal article, many early studies have shown that people tend to compare their performance upward rather than downward (e.g., Miller & Suls, 1977; Wheeler, 1966; Wilke, Kuiper, Rouwendal, & Visser, 1978). In the context of education, two independent studies among high school students showed that, on average, students preferred to compare their grades in a variety of subjects with those of other students who did slightly better than they (Blanton et al., 1999; Huguet et al., 2001). There is also evidence that in work situations, comparisons with better performing others occur more often than comparisons with worse performing others (e.g., Buunk, Zurriaga, Peiro, Nauta, & Gosalvez, 2005). We therefore expected that, over-

all, affective responses to upward comparison will be more frequent than to downward comparison.

The second feature of the comparison that will influence the affective responses to social comparison is the *framing* of the comparison situation (see Table 2). About 45 years ago, Heider (1958, pp. 277–282) made a conceptual analysis of how individuals may respond to the lot of another person that seems especially relevant in this context. According to Heider, individuals may show *antagonism*, and may feel thus happy in response to a downward comparison, when they see the other person doing worse (e.g., relief), and feel bad in response to an upward comparison, when they see the other person doing better (e.g., frustration). Individuals may also experience *sympathetic identification*, when the individual's feelings are concordant with the lot of the other, in which case downward comparison would generate negative affect (compassion), and upward comparison would lead to positive affect (sympathetic enjoyment). A number of studies have provided evidence that in group contexts, sympathetic identification may be more prevalent than antagonism. For example, a study among health care workers showed that, in general, upward comparisons evoked somewhat more positive than negative affect and that downward comparisons evoked much more negative than positive affect (e.g., Buunk, Ybema, Van der Zee, Schaufeli, & Gibbons, 2001; Buunk et al., 2005). Instead of *antagonism* we use the term *contrast*, which is commonly used in the social comparison literature (e.g., Stapel & Koomen, 1998), and instead of *sympathetic identification* we simply use the term *identification*. The high level of identification found among health care workers—who all worked in interdependent groups—would suggest that in classrooms, in which persons also interact on a day-to-day basis, identification responses would be more prevalent than contrast responses. However, as individuals aim to be better than others, and prefer to identify themselves with upward rather than with downward comparison targets (Buunk & Ybema, 1997), we expected to find more identification and less contrast in response to upward comparison than in response to downward comparison.

The affective responses to social comparison will depend not only on the direction and framing of social comparison but also on the *focus* of comparison. According to the identification-contrast model of Buunk and Ybema (1997), *identification* refers to a focus on the potential consequences of the situation of the target for one's own actual or future situation. However, in line with what Smith (2000) suggested, when confronted with a comparison target, individuals may adopt a focus on the implications of the situation not only for themselves (self-focus) but also for the other person (other-focus). Thus, as shown in Table 1, in the case of an upward comparison, identification may evoke different responses depending of the focus of the comparison. A focus on the consequences for the other would imply sympathetic enjoyment, that is, being happy for him or her ("I think it is nice for the other per-

son”), and a focus on the consequences for oneself would evoke particular feelings of hope or optimism (“I might be able to get such a high grade next time, too”). In the case of contrast (or antagonism) in upward comparison, a focus on the other would imply feelings of resentment (“I begrudge him or her”), whereas a focus on the self might imply a concern with one’s own misconduct or inferiority, which might induce feelings of frustration (“I feel frustrated that I don’t have such a good grade”). As Lockwood and Kunda (2000) proposed, relevant others who perform better (so-called “superstars”) may evoke inspiration when their success seems attainable, because one feels that one may be able to achieve the same thing in the future. However, such superstars may evoke self-deflation when their success seems unattainable, because the achievement is seen as something one could never achieve.

Also in the case of a downward comparison, identification may evoke different responses depending on the focus of the comparison. A focus on the consequences for the other would imply compassion with the other (“I feel sorry for the other person”), whereas a focus on the consequences for oneself would evoke worry and concern (“I might well receive such a low grade the next time”). In the case of contrast in downward comparison, a focus on the other would imply feelings such as contempt (“The person deserves it”), whereas a focus on the self would imply relief and pride that one is doing better (“I feel happy I am doing better”).

We further argue that an upward comparison is usually more impactful than a downward comparison and will therefore evoke a stronger focus on the consequences of the comparison for the self and a lesser focus on the consequences for the other person. The information that the other person is doing better is basically negative information, and many studies have found that negative information usually results in more self-focus (e.g., Krohne, Pieper, Knoll, & Breimer, 2002; Palfai & Salovey, 1992). In contrast, the information that the other has performed worse will be not threatening and may therefore induce less self-focus. Therefore, we expected that a self-focus will be more prevalent after an upward comparison and that an other-focus will be more prevalent after a downward comparison.

### GENDER DIFFERENCES IN AFFECTIVE RESPONSES

An additional issue examined in our study was gender differences in the affective responses to social comparison, a topic that has hardly been studied; most research on gender differences in social comparison has focused on the choice of a comparison other. Some evidence for gender differences in responses to social comparison comes from a study by VanDijk, Ouwerkerk, Goslinga, and Nieweg (2003), who found that men show more *Schadenfreude* than women do, that is, they experience more pleasure in the misfortune of

others (e.g., Smith et al., 1996). In addition, there is evidence that women experience more intense joy and sadness and that men experience more anger, regardless of the context (e.g., Briton & Hall, 1995; Brody & Hall, 1993; Fujita, Diener, & Sandvik, 1991; Kelly & Hutson-Comeaux, 1999). Particularly relevant in the present context is the evidence that women are more empathic than men (e.g., Lennon & Eisenberg, 1987; Sinclair & Bourne, 1998). *Empathy* has been defined as the act of “feeling into” another’s affective experience (Strayer & Eisenberg, 1987). This definition implies a focus on the other person as well as identification with him or her. In addition, there is also research showing that men are in general more competitive than women (e.g. Raeikkoenen, Keskivaara, & Keltikangas-Jaervinen, 1992). Therefore, we expected that female students would show more other-focus and more identification with the comparison target than would male students, whereas male students would show more contrast with the comparison other (in fact, *antagonism* would be a better word here) and self-focus.

### SUMMARY OF HYPOTHESES AND STUDY OVERVIEW

We expected that, overall, (1) responses to an upward comparison would be more frequent than to a downward comparison, (2) responses involving identification would be more frequent than responses involving contrast, and (3) responses involving a self-focus would be more frequent than responses involving an other-focus. However, we predicted that these main effects would be in important ways qualified by interaction effects; that is, (4) identification and self-focus would be more prevalent after an upward comparison than after a downward comparison, and (5) contrast and other-focus would be more prevalent after a downward comparison than after an upward comparison. In addition, we expected that (6) female students will show more other-focus and more identification than male students, and (7) male students will show more self-focus and contrast. We studied these hypotheses by having students in their 1st year of secondary education fill out a questionnaire on the affective consequences to social comparison. Because performance level might affect the responses to social comparison, we also included this variable in this research, which was part of a larger research project in which students were followed during their first 3 years of secondary education. Only a part of the whole data set is used here. Other parts of the data have been used by Blanton et al. (1999).

### METHOD

#### Participants

This study was part of a larger project investigating factors that influence academic performance. Participants were stu-

dents in their 1st year of secondary education (i.e., seventh grade) at four schools in different parts of the Netherlands ( $N = 921$ ). With a few exceptions, the age of these students was 12 to 13 years. At the beginning of the school term, all parents were informed about the research by the schools and were given the opportunity to refuse their child's participation. No parent took this option. When these students started secondary education, they were assigned by the school administration to classes. A "class" is a group of students that remains stable throughout the entire school year. Students take all of their courses in the same class. The total number of classes was 33 (with 23–30 students in each class and 7–11 classes per school).

Students were, of course, not assigned randomly to either their school or class. A variety of factors might have influenced the choice of school. These would include the recommendation of the primary education teacher, who usually will have tried to match student's scores on a standardized test to the difficulty of the school for secondary education; the religious denomination of the school; the distance of the school from the student's home; and the school's local reputation. The four schools in this study provided education at the average and high levels. Each school would typically be recommended for students who were seen as having average to high level of academic talent. In one school, all classes were heterogeneous; in the other three schools, classes were divided into two or three different ability levels (tracks) based on teacher recommendations. Three of the schools were Catholic, and one was Protestant. However, in the Netherlands, religious schools are funded by the government and are not really different from public schools; neither are they considered more or less prestigious. The schools were located in different parts of the Netherlands. They were selected for inclusion on the basis of their interest in a request sent to all secondary schools in the Netherlands. Each school was paid 3400 Euro (about U.S. \$4,000) for their participation in the whole project. Some schools opted not to take the full amount of the reimbursement. Around the Easter holiday, a social comparison questionnaire was administered during regular schooltime, which was completed by 888 (96.4%) of the 921 students. Nonresponse was due to absence at the scheduled hour.

## Measures

After a series of questions about with whom the students talked most and with whom they compared their grades at school (see Blanton et al., 1999), the questions on the affective responses were asked. The school administrations provided information about the gender and grades of the students.

**Affective responses.** There were three factors, with two levels, each supposedly underlying the affective responses. Technically, the responses to social comparison

represented a 2 (Direction of Comparison)  $\times$  2 (Framing)  $\times$  2 (Focus) within-subject design. Because of limitations of the questionnaire, one question was asked for each response. The following question was used to focus students on downward comparison: "How often did you receive a higher grade than the classmate with whom you compared yourself?" Next, participants were asked "When receiving a *higher* grade than this classmate, how often did you experience the following feelings?" Four affective appraisals were presented, using the same format, representing the factors identification versus contrast and self-focus versus other-focus. The contrast self-focus item was "I was glad I received a higher grade" (relief), the identification self-focus item "I was afraid that I too would receive such a low grade the next time" (worry), the contrast other-focus item "I felt he or she deserved it" (contempt), and the identification-other focus item "I felt sorry for the other person" (compassion). In the same way, participants were focused on upward comparison with the question "How often did you receive a lower grade than the classmate with whom you compared yourself?", and they were asked "When receiving a *lower* grade than this classmate, how often did you experience the following feelings?" Again, four affective appraisals were presented, representing the factors identification versus contrast and self-focus versus other-focus. The contrast self-focus item was "I was annoyed that I had not received such a good grade" (frustration), the identification self-focus item "I hoped I would also receive such a good grade the next time" (hope), the contrast other-focus item "I in fact begrudged him or her" (resentment), and the identification-other focus item "I thought it was nice for the other" (sympathetic enjoyment). All questions were answered on a 5-point scale (1 = *never*, 5 = *often*).

For both the downward and upward affective appraisal questions, participants were instructed that they should skip the questions in the case they had indicated that they never had engaged in downward or upward comparisons, respectively. Thus, each individual item refers to either an upward or a downward comparison outcome, to contrast or identification, and to self-focus or other-focus.

**Performance level.** For the purpose of this study, we divided the students in each class in three performance level groups as follows. First, the grades for seven subjects (biology, math, history, geography, Dutch, English, and French) were transformed into  $z$  scores within each class. Next, for each student the mean of the  $z$  scores was computed for the seven subjects (with one subject allowed to be missing). This left the mean of 0.00 unaffected but had an effect on the standard deviation. Finally, on the basis of these mean  $z$  scores participants were divided in three groups of about the same number of students, resulting in one subgroup consisting of the students with the lowest performance level compared to their class, one subgroup with about average performance level, and one subgroup with the highest performance level.

TABLE 2  
Means of the Social Comparison Responses  
Associated With the Two-Way Within-Subject  
Interactions

Direction	Framing			
	Identification		Contrast	
	M	SD	M	SD
Upward	4.04	0.86	2.65	0.76
Downward	2.56	0.78	2.66	0.77

  

Direction	Focus			
	Self		Other	
	M	SD	M	SD
Upward	4.05	0.91	2.64	0.67
Downward	2.73	0.82	2.49	0.74

  

Framing	Focus			
	Self		Other	
	M	SD	M	SD
Identification	3.01	0.73	3.59	1.09
Contrast	3.76	0.93	1.55	0.81

It should be noticed that the limits might be somewhat different across classes.

We decided to perform the analyses on the complete cases only. As a consequence, the number of participants was reduced to 609. There were three sources of item nonresponse. In the first place, there were the normal missing values. At the item level the number of this type of missing values varied from 20 (2.3%) to 63 (7.1%). Some of these missing values were due to the fact that the instructions told participants to skip the items after the answer “never” on the two preliminary questions (such a response was given by 14 and 21 students, respectively). In the second place, the uninformative answers “does not apply” and “no idea” were defined as missing. At the item level, the number of this type of missing values varies from 61 (6.9%) to 102 (11.5%). Finally, there occurred seven multiple answers—divided over four items—which were defined also as missing. There remained 621 students who had valid data on all 10 items. In addition, the grade data were incomplete for 12 students.

## RESULTS

We analyzed the data with a multivariate repeated measures analysis of variance, or—more specifically—the GLM module of SPSS. This multivariate analysis of variance was performed with gender and relative performance level as between-subjects factors and comparison direction (upward vs. downward), framing (identification vs. contrast), and focus

(self-focus vs. other-focus) as within-subject factors. For the three within-subject factors, differences contrasts were defined. The analysis showed a number of significant effects ( $p < .001$ ). Next, we first describe the main effects and interaction effects of the within-subject factors; then the effects of gender; and, finally, the effects of relative performance level. Two higher order interactions, which were also significant ( $p < .05$ ), are not discussed here.

### Effects of Direction, Framing, and Focus

All three main effects of the within-subject contrasts were significant, as were the 3 two-way interactions and the three-way interaction. There was a main effect of direction,  $F(1, 603) = 765.85, p < .001$ , indicating that, as predicted by Hypothesis 1, overall, responses after upward comparison ( $M = 3.34, SD = 0.62$ ) occurred more frequently than after downward comparison ( $M = 2.61, SD = 0.59$ ). The main effect of framing,  $F(1, 603) = 373.04, p < .001$ , indicated that, as predicted by Hypothesis 2, overall, social comparisons evoked more identification ( $M = 3.30, SD = 0.67$ ) than contrast ( $M = 2.66, SD = 0.65$ ), and the main effect of focus,  $F(1, 603) = 648.71, p < .001$ , indicated that, as predicted by Hypothesis 3, social comparisons evoked more responses involving a self-focus ( $M = 3.39, SD = 0.70$ ) than an other-focus ( $M = 2.56, SD = 0.60$ ). These main effects were qualified by the two-way interactions. We discuss these only in general terms because, as we describe later, they were qualified by the three-way interaction.

First, there was a significant interaction between direction and framing,  $F(1, 603) = 939.62, p < .001$ . As the upper part of Table 2 shows, overall, identification in response to upward comparison was by far more frequent than the other three responses that occurred with about the same frequency. There was also an interaction between direction and focus,  $F(1, 603) = 565.81, p < .001$ . As the middle part of Table 2 shows, a self-focus in response to upward comparison was by far more frequent than the other three responses that occurred with about the same frequency. Thus, in line with Hypotheses 4 and 5, students not only identified especially with the upward target but also focused in particular on the implications for themselves of the relatively high grade of the upward comparison target. Finally, there was an interaction between framing and focus,  $F(1, 603) = 1440.35, p < .001$ . A self-focus occurred more often in combination with contrast, and an other-focus occurred more often in combination with identification. By far, the least frequent responses were characterized by an other-focus and contrast (see the lower part of Table 2). Finally, there was, as indicated earlier, a three-way interaction among framing, direction, and focus,  $F(1, 603) = 577.80, p < .001$ , that substantially qualified the two-way interactions. The means belonging to this three-way interaction, which are the overall item means, are given in Table 3, which shows also the standard deviations that are associated with these means.

TABLE 3  
Item Means and Standard Deviations Belonging to  
the Three-Way Within Subject Interaction

Comparison Type	Self-Focus		Other-Focus	
	M	SD	M	SD
Upward				
Identification	4.33	1.00	3.74	1.22
Contrast	3.76	1.14	1.54	0.95
Downward				
Identification	1.69	1.02	3.43	1.23
Contrast	3.76	1.13	1.56	0.97

As is apparent in Table 3, the most frequent response was upward identification with a self-focus, that is, an optimistic response focusing on the possibility one might improve (“I hoped to receive such a good grade the next time”), whereas both responses involving a contrast with an other-focus—that is, a hostile attitude toward the other (upward: “I begrudged him or her”; downward: “I felt he or she deserved it”)—were the least frequent responses. These were as infrequent as downward identification with a self-focus, also not implying a particularly positive attitude toward the other (“I was afraid that I too would receive such a low grade the next time”). The other four responses were considerably more frequent. These concerned contrast focusing on the implications for oneself, that is, a competitive attitude (downward: “I was glad I received a higher grade”; upward: “I was annoyed that I had not received such a good grade”), and identification focusing on the implications for the other, that is, an altruistic attitude (downward: “I felt sorry for the person”; upward: “I thought it was nice for the other person”).

### Effects of Gender

There was an interaction between gender and framing,  $F(1, 603) = 26.73, p < .001$ . As the upper part of Table 4 shows, and in line with Hypotheses 6 and 7, girls showed more identification than boys, whereas boys had a tendency to show more contrast than girls. There was also an interaction between gender and focus,  $F(1, 603) = 16.36, p < .001$ . As presented in the middle part of Table 3, and also in line with Hypotheses 6 and 7, girls showed more other-focus than boys, whereas boys had the tendency to focus more on the implications of the grade of the target for themselves than girls did. The interaction between gender and direction was not significant,  $F(1, 603) = 0.62$ . There was a three-way interaction among gender, framing, and focus,  $F(1, 603) = 41.30, p < .001$ . The means in the lower part of Table 4 show that, when identifying with the comparison target, an other-focus was considerably more typical for girls than it was for boys, and a self-focus was more typical for boys, whereas when contrasting with the comparison target, an other-focus was more typical for boys.

Additional analyses revealed five significant differences between boys and girls that were largely in line with Hypotheses 6 and 7. Two of these concerned downward identification. Among girls, such identification was more common when it included a focus on the implications of the low grade of the target for that person (“I felt sorry for the other person”). The girls’ mean on this item is 3.69 versus  $M = 3.11$  for boys,  $t(607) = 6.02, p < .001$ . Among boys, downward identification was more common when it included a focus on the implications of the low grade of the target for themselves (“I was afraid that I too would receive such a low grade the next time”). The boys’ mean on this item is 1.80 versus  $M = 1.60$  for girls,  $t(607) = 2.44, p < .05$ . Also, upward identification with a focus on the consequences for the other was more common among girls (“I thought it was nice for the other person”). On this item, the girls’ mean is 4.03 versus  $M = 3.40$  for boys,  $t(607) = 6.56, p < .001$ . Among boys, however, two hostile responses were somewhat more common than among girls, that is, upward and downward contrast with a focus on the other: “I begrudged him or her” (boys:  $M = 1.67$ , girls:  $M = 1.42$ ),  $t(607) = 3.27, p < .001$  and “I felt he or she deserved it” (boys:  $M = 1.66$ , girls:  $M = 1.48$ ),  $t(607) = 2.26, p < .05$ . Thus, in general, girls showed more altruistic and empathic responses, and boys more egocentric and hostile responses, to social comparison.

### Effects of Relative Level of Performance

Relative performance level had little effect on the responses to social comparison. Only the four-way interaction among relative performance level, direction, framing, and focus was significant,  $F(2, 603) = 7.08, p < .001$ . One-way analyses of variance on the eight items showed that relative performance level had a significant effect ( $p < .01$ ) only on downward self-focused identification (“I was afraid that I too would re-

TABLE 4  
Means Associated With the Effects of Gender

	Boys		Girls	
	M	SD	M	SD
Framing				
Identification	3.17	0.71	3.41	0.62
Contrast	2.71	0.69	2.61	0.61
Focus				
Self	3.43	0.71	3.36	0.70
Other	2.46	0.63	2.66	0.56
Framing × focus				
Identification				
Self	3.09	0.73	2.95	0.73
Other	3.26	1.11	3.86	0.99
Contrast				
Self	3.76	0.96	3.76	0.92
Other	1.67	0.88	1.45	0.73

ceive such a low grade the next time”), which was somewhat more frequent in the low-performance group.

It should be noted that gender and performance level are not completely independent. The chi-square value of the relation is 7.76 ( $N = 609$ ,  $df = 2$ ,  $p < .05$ ). The boys were somewhat overrepresented in the low-performance group, and the girls were somewhat overrepresented in the high performance group ( $r = 0.11$ ,  $p < .05$ ).

## DISCUSSION

The results showed considerable support for the hypotheses. Overall, the students reported more frequent responses to upward than to downward comparison, more identification than contrast, and more frequent responses implying a self-focus than an other-focus. Upward comparisons evoked more often identification and a self-focus, and indeed, the most frequent response was a self-focused identification with an upward comparison target, that is, the hope that in the future one might receive a good grade similar to the target. These findings are in line with classic work on social comparison that has suggested that individuals tend in general to compare more upward than downward, in part to confirm their similarity to better functioning targets (e.g., Buunk et al., 2001; Festinger, 1954; Miller & Suls, 1977; Wheeler, 1966), and are also in line with recent statements that underline the predominant role of upward comparisons for motivation and inspiration (e.g., Buunk & Ybema, 1997; Collins, 1996; Lockwood & Kunda, 1997). The findings confirm our reasoning that an upward comparison will have more impact than a downward comparison and will therefore evoke a stronger focus on the consequences of the comparison for the self than on the consequences for the other person. Indeed, it would seem more relevant to find out why one performed worse than the other person than to find out why the other person performed worse. In addition, our findings are in line with the assumption that the information that the other person was doing better is basically negative information that in general will result in a self-focus (e.g. Krohne et al., 2002; Palfai & Salovey, 1992). There was some evidence for differences in the affective reactions depending on the performance level, with students with a low performance level expressing more concern that they too might receive a low grade the next time. This seems to reflect the uncertainty of students with a low performance level.

There was considerable evidence for gender differences in the responses to social comparison. In general, girls showed more altruistic and empathic responses, and boys showed more egocentric and hostile responses, to social comparison. That is, girls showed more sympathetic identification with someone who had obtained a lower grade than they did; that is, they focused on the implications of the low grade for that person (“I felt sorry for the other person”). In contrast, boys

more often showed an egocentric focus on the implications of the low grade of the target for themselves (“I was afraid that I too would receive such a low grade the next time”). Also, upward identification with a focus on the consequences for the other was more common among girls (“I thought it was nice for the other person”). Among boys, however, hostile responses were more common than among girls: Boys more often begrudged the other a good grade and felt more often that someone deserved the poor grade. These differences between boys and girls are in line with a large body of literature on gender differences, including research on competitiveness and empathy (e.g., Chapell, 1997; Lennon & Eisenberg, 1987; Raeikkoenen, et al., 1992; Strayer & Eisenberg, 1987). In these studies it has been found that men tend to be more competitive than women and that women tend to be more empathic than men. This competitiveness of men might underlie their stronger focus on themselves and their contrasting with the comparison other, whereas the higher level of empathy of women might underlie their stronger identification with and focus on the comparison other.

This research may contribute to the literature in a number of ways. The first contribution is that this study was performed in a real life situation, with real students, in their actual classroom environment. This study thus can be seen as a fairly realistic portrait of the self-reported affective reactions to social comparison. This study is especially realistic in that students were allowed to indicate that they did not compare their grades with other students (these students did not fill in the affective response items). Note that the questions were answered only by students who indicated that they compared their grades with those of their classmates. A second contribution of this study is that we found substantial gender differences in the affective responses to social comparison. This seems important because these differences may influence the motivation and behavior of male and female students. For example, male students’ resentment toward a better performing other, and their concern that a downward target might do better next time, may be defensive reactions that will not necessarily result in setting challenging goals. In contrast, the high degree of sympathetic identification that girls show with a better performing target might result in setting more challenging goals: They identify with the other who received a high grade, and this identification might encourage them to strive for a higher grade the next time. These may be important considerations in cooperative learning settings. A third contribution of this study is that, as far as we know, this is the first time that three aspects of social comparison, direction (upward vs. downward), framing (identification vs. contrast), and focus (self-focus vs. other-focus) were examined simultaneously. This resulted in a quite specific and detailed view on the reactions to social comparison.

Despite these contributions, there are also a number of potential limitations to this study. First, because there is no

independent evidence that the different affective reactions represented the constructs of assimilation versus contrast and self-focus versus other-focus, our conclusions about the frequency of these constructs have to be viewed with caution. Second, the situation might have been more realistic for some students than for others. Students with a relatively low or high level of performance may have little memory of, respectively, a downward or an upward comparison. We tried to control for this by including the variable of level of performance, but it nevertheless should be mentioned. Third, there may be considerable bias in the answers of the students. Students reported few hostile responses, such as begrudging the other or feeling the other deserved his or her low grade. Socially desirable responding may have affected the reported frequencies for these feelings, as these are responses that generally evoke considerable disapproval. Of course, various responses that are not socially desirable (e.g., feeling annoyed that one had not received such a good grade, and feeling good that one had done better than the other) were quite common, but such responses are surely less socially undesirable than hostile responses toward the other. Finally, some items may not have been the most valid way to assess a particular response. For example, identification self-focus was measured by asking whether one was concerned that the other person would receive a higher grade next time, whereas asking whether one was afraid that one might do as poorly as the other person next time might have been a more appropriate assessment. Despite these limitations, overall, the present results may be considered as a first step toward understanding the process of affective consequences of social comparison in the classroom. Additional questions, for example, whether there are gender differences in other responses to social comparison besides those assessed in this study, need to be explored. Smith (2000) made the same distinction among the three features of social comparison as in this research. As Table 1 shows, three of the responses (resentment, worry, and contempt) are identical in both models. The differences between two responses are mainly semantic (e.g., hope vs. optimism, compassion vs. pity), but the differences between the remaining responses are somewhat more substantive (e.g., sympathetic enjoyment vs. admiration, frustration vs. depression/shame, and relief vs. pride). Furthermore, in addition to the eight appraisals we assessed, Smith suggested four other appraisals, as he extended his model with dual focus next to self-focus and an other-focus. According to Smith, a dual focus implies attention to the implications of the comparison for the self as well as for the other. The responses that are, according to Smith, typical of a dual focus, are inspiration (upward, assimilation), envy (upward, contrast), sympathy (downward, assimilation) and *Schadenfreude* (downward, contrast). For example, *Schadenfreude* implies a blend of enjoying one's own superiority and contempt for the other's inferiority. In future research it will be important to assess these affective

reactions as well. Moreover, it will be important to examine the role of individual differences in the importance of social comparison of grades to the students. One option would be to include a general scale for *social comparison orientation* (Gibbons & Buunk, 1999). Individuals scoring high on this scale have a higher dispositional need for social comparison than individuals scoring low on this scale, and such differences may affect the responses to social comparison in the classroom. Finally, it seems important to assess the subjective importance of comparisons on school performance versus comparisons on other dimensions, such as athletic ability and physical appearance. Indeed, there is still much to learn about the process of social comparison among adolescents.

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