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Social comparison in the classroom: Priming approach/avoidance changes the impact of social comparison on self-evaluation and performance

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Background. Social comparisons between pupils are especially relevant at school. Such comparisons influence self-perception and performance. When pupils evaluate themselves more negatively and perform worse after an upward comparison (with a better off pupil) than a downward comparison (with a worse-off pupil), this is a contrast effect. On the other hand, when they evaluate themselves more positively and are better after an upward than downward comparison, this is an assimilation effect.

Aims. We examine assimilation and contrast effects of comparison in the classroom on pupils' self-evaluation and performance. Previous work by Fayant, Muller, Nurra, Alexopoulos, and Palluel-Germain (2011) lead us to hypothesize that approach vs. avoidance moderates the impact of upward vs. downward comparison: approach should lead to an assimilation effect on self-evaluation and performance, while avoidance should lead to contrast on self-evaluation and performance.

Methods. To test this hypothesis, we primed pupils with either approach or avoidance before reading upward or downward comparison information about another pupil. We then measured self-evaluation (Experiment 1) and performance (Experiments 1 and 2).

Results. Results confirmed our predictions and revealed the predicted interaction on self-evaluation (Experiment 1) and performance (Experiment 2): approach leads to an assimilation effect (in both experiments) whereas avoidance leads to a contrast effect (in Experiment 2).

Conclusions. These experiments replicate previous studies on self-evaluation and also extend previous work on performance and in a classroom setting. Priming approach before upward comparison seems especially beneficial to pupils.

Social comparison is ubiquitous, and especially at school. In the classroom, pupils continuously get grades, praises, or comments by their teacher as a part of the learning and

[Correction added on 04 December 2021, after first online publication: Both affiliations have been changed from Universite to Univ.]

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evaluation process. Social comparison is significant regarding pupils' self-perceptions and, even more relevant in a classroom context, regarding pupils' performance. Multiple studies have documented the existence of threatening and inspiring social comparison dynamics in the classroom. From an applied perspective, it is crucial to identify determinants of threatening and inspiring dynamics that can be easily manipulated in a natural setting. In this article, we argue that the experience of approach and avoidance is a fruitful candidate to moderate the impact of social comparison on pupils' self-evaluation as well as pupils' performance.

Social comparison effects in the classroom: Assimilation and contrast

In the classroom, pupils constantly face social comparisons due to the grades and teachers' feedback (Dijkstra, Kuyper, Vander Werf, Buunk, & Vander Zee, 2008). Specifically, they can compare to pupils who got better grades, an upward comparison, or worse grades, a downward comparison. Research shows that these comparisons can be threatening or motivating (Butera & Darnon, 2017).

Some research shows a negative relationship between the direction of the social comparison (downward vs. upward) and the pupils' self-concept and performance. This is coined a contrast effect (Suls & Wheeler, 2007). For instance, a very robust and well-known finding is that pupils from high-achievement schools have a lower self-concept than those from low-achievement schools (Big Fish Little Pond Effect, Marsh, 1987; Marsh & Parker, 1984; Marsh, Trautwein, Ludtke, & Koller, 2008). This negative relationship also occurs for academic performance (Marsh, 1991; Zeidner & Schleyer, 1999). As pupils from higher-achievement schools are exposed to peers with higher abilities than pupils from low-achievement schools, they have a higher probability to compare upward than downward. Results support this social comparison explanation by showing that the negative impact of school ability level on self-perception disappears when controlling for the perceived ranking in class (Huguet et al., 2009). Contrast effects can refer to threatening effects of upward comparison (Huguet et al., 2009; Muller & Fayant, 2010) and/or positive effects of downward comparison (see Bruchmann, 2017; Morse & Gergen, 1970).

Alternatively, other research shows a positive relationship between the direction of the social comparison and its effect on self-concept and performance. This positive relationship is called an assimilation effect (Suls & Wheeler, 2007). For instance, the more pupils compare upward than downward, the better their academic self-evaluation (Boissicat, Pansu, & Bouffard, 2020, Huguet et al., 2009, but see Seaton et al., 2008). Importantly, the grades of the comparison target positively predict pupils' grades (after controlling for previous pupils' grades, Blanton, Gibbons, Buunk, & Kuyper, 1999; Huguet, Dumas, Monteil, & Genestoud, 2001) and even reading and mathematics tests performance two years later (Wehrens, Kuyper, Dijkstra, Buunk, & van der Werf, 2010). This suggests that the more pupils compare upward, the better the pupil's self-perception and performance. This positive relationship between the direction of social comparison and the self implies that upward comparison can be inspiring for the self (Lockwood & Kunda, 1997), while downward comparison can be sometimes demotivating (Kemmelmeier & Oyserman, 2001).

These contrast and assimilation effects co-exist in the classroom and affect both self-perception and performance (Boissicat, Pansu, Bouffard, & Cottin, 2012; Herrmann, Schmidt, Kessels, & Preckel, 2016; Huguet et al., 2009; Seaton et al., 2008). Typically, research in school contexts has investigated these dynamics in terms of: (1) imposed comparisons for contrast effects (Big Fish Little Pond Effect, Seaton et al., 2008) and (2) deliberately chosen comparisons for assimilation effects (preference for upward

comparison, Huguet et al., 2009). This state of affairs has some limitations. First, from a theoretical perspective, research shows that the way imposed comparisons affect self-evaluation depends on various factors. For instance, imposed upward comparisons can be positive and inspiring when the target seems attainable (Lockwood & Kunda, 1997), when there is a positive interdependence between the self and the target (e.g., informational interdependence, Butera & Darnon, 2017; cooperation, Colpaert et al., 2015), or when the target is similar to us and the domain not so important for the self (basking in reflected glory, Tesser, 1988). As an example in the school context, an interdependent (vs. independent) self-construal moderates the effect of social comparison with classmates on self-evaluation (Cheng & Lam, 2007). Second, in terms of an applied perspective, although deliberate comparisons are extremely flexible in the service of self-regulation (Taylor & Lobel, 1989), deliberate upward comparisons are efficient only under strong identification with the target (Boissicat et al., 2020). Third, from an intervention perspective it is difficult to influence both the social comparison context (i.e., the academic level of the classroom) as well as to which classmate pupils will compare to. We therefore need to find a variable that can shape the effect of social comparison independently of the comparison context and the available target of comparison. The goal here is thus to examine approach/avoidance as a relevant moderator of imposed social comparison effects on both self-evaluation and performance.

Approach/avoidance as a relevant moderator of social comparison effects

Research on assimilation and contrast effects usually focuses either on self-evaluation or on performance (Bless & Schwarz, 2010; Dijkstra et al., 2008; Mussweiler, 2003). Among the determinants of assimilation and contrast effects, the experience of approach and avoidance appears to be a likely moderator candidate of social comparison effects on both self-perception *and* performance. First, approach refers to a decrease in the distance between the self and a reference object, and avoidance refers to an increase in the distance between the self and a reference object. Therefore, approach signals that the self-value moves toward the comparison target value, while avoidance signals that the self-value moves away from the comparison target value. In this way, approach and avoidance create self-evaluative assimilation and contrast effects (Fayant et al., 2011). Crucially, approach and avoidance are important components of goal regulation (Carver, 2004; Förster, Liberman, & Friedman, 2007). Approach is closely linked to attainability (Fayant et al., 2011; attainability defined as perceiving the target as a goal; Lockwood & Kunda, 1997; Lockwood, Jordan, & Kunda, 2002) and the strategy of pursuing desirable outcomes, while avoidance is closely linked to the regulation of undesirable ones (Higgins, 1997). Hence, approaching an upward target (a desirable end state) and avoiding a downward target (an undesirable one) should be especially motivating to change performance as compared to approaching a downward and avoiding an upward comparison target. Consequently, we expect approach/avoidance to moderate the effect of social comparison on both self-evaluation *and* performance. Some research indirectly supports this claim showing that approach and avoidance lead to assimilation and contrast effects on self-perception (Fayant et al., 2011) as well as performance (Nussinson, Seibt, Häfner, & Strack, 2010).

The current research

In this article, we propose that approach versus avoidance lead to assimilation and contrast effects on self-evaluation *and* performance. Specifically, we argue that approach/

avoidance moderates the impact of social comparison on pupils' evaluation and performance. We test this reasoning in two experiments conducted during regular class hours. In both experiments, we manipulated approach/avoidance using the maze procedure (Friedman & Förster, 2005). Pupils have to guide a little mouse through the exit of a maze to either find a piece of cheese (approach) or run away from an owl hanging over the maze (avoidance). We relied on this induction for two reasons. First, the procedure can be presented as a game for pupils and previous work shows that such a procedure is efficient to induce assimilation and contrast (Fayant et al., 2011). Second, past research replicated assimilation and contrast with different types of approach and avoidance inductions (walking forward or away; Fayant et al., 2011; arm flexion/extension, Nussinson et al., 2010) establishing validity about the link between approach/avoidance and assimilation and contrast. We then manipulated social comparison by presenting a writing description of a pupil doing well or poorly at school (adapted from Mussweiler, 2001, see also Fayant et al., 2011) before measuring students' self-evaluation in mathematics (Experiment 1) and performance to a maths task sensitive to context manipulation (Experiments 1 and 2, Oyserman, Gant, & Ager, 1995).

Ethical and research practices

We obtained approval from the French educational authorities. Data were collected with school permission following the requirements of the French educational authorities about public school data collection. In France, explicit approval from an ethical committee is not required by national regulation for this type of research. Parents were informed about the experiment and were given the opportunity to exempt their pupils' participation. Pupils were aware that they can refuse to participate or can stop participating at any time, without consequences on their school work. For both experiments, we report how we determined our sample size, all data exclusions, all manipulations, and all measures. We examined the following outliers' criteria for each analysis: the studentised deleted residual, the Cooks' distance, and the leverage values (see Judd, McClelland, & Ryan, 2009). For both studies, we report the standardised coefficient for the covariate and the 95% confident intervals corresponding to the differences between the tested means.

EXPERIMENT 1

In this experiment, we assessed pupils' self-evaluation as well as performance. We expected that priming of approach/avoidance would moderate the impact of upward/downward comparison on pupils' self-evaluation and performance in mathematics. By priming, we refer to a short procedural training that influences approach and avoidance orientations (see Fayant et al., 2011; Nussinson et al., 2010).

Method

Participants

Two hundred twenty-nine pupils (114 girls) in their fifth year of elementary school (about 9½ years of age) participated in the experiment. Pupils were from 10 classrooms (eight French public elementary schools). A sensitivity analysis indicated that such a sample size enables us to detect an effect size of $\eta^2_p = .03$ ($d = .37$) with 80% of power (Cohen, 1992). This corresponds to the smallest effect size found by Fayant et al. (2011).

Materiel and procedure

We randomly assigned pupils to a 2 (approach vs. avoidance) by 2 (upward vs. downward comparison) between-participants design: for each classroom, the instructor randomly handed the questionnaire to pupils.

In order to control for pupils' initial self-evaluation in mathematics, at the beginning of the experiment, pupils completed the French version (Guilbert, 1990; five items) from the perceived scholastic competence subscale (five items) of the Perceived Competence Scale for pupils (Harter, 1982) adapted to mathematics for the purpose of this experiment. Each of the five items provided a description of hypothetical pupils as in the following example: 'Some pupils can often figure out answers in mathematics'. Pupils indicated to what extent the description applied to them on a scale ranging from 1 (*not true for me at all*) to 4 (*really true for me*). We averaged pupils' responses ($\alpha = .82$) so that the higher the score, the higher the pupils' self-evaluation in mathematics. To control for initial pupils' mathematics competencies, as in elementary school teachers do not grade their pupils with a numeric score, we asked their teachers to rate their mathematics performance on an 11-point scales (from *very low* to *very high*) at the time of data collection (for more details, see Appendix S1). This measure is valid since several studies showed strong links between teachers' judgement and student ability measured by standardised tests ($r = .66$, Hoge & Coladarci, 1989; see also Bressoux & Pansu, 2016; Südkamp, Kaiser, & Möller, 2012).

After collecting initial self-evaluation, we manipulated approach/avoidance. Pupils had to guide a mouse find its way through a maze either to eat a piece of cheese lying at the maze's exit (approach) or to avoid an owl hanging over the maze (avoidance; Friedman & Forster, 2005; see Figure 1). Then, we manipulated comparison by asking pupils to read a short text about Alex, a same-sex pupil (when the instructor handed the questionnaire, he made sure that Alex's sex fitted the participants' sex). Alex was either described as doing very well (upward comparison) or very poorly (downward comparison) in different ways in mathematics (schoolwork, exams. . .). Next, we assessed self-evaluation in mathematics as a dependent variable: pupils estimated their level of mathematics knowledge on a scale from 0 (not good at all) to 7 (really good). Finally, to assess performance, pupils completed a mathematical exercise called 'the target number'. In this task, pupils have to find the target number 36 by using only the numbers 2, 3, and 7. They may use any operation, and use the numbers as many times as they want to. For instance, a possible correct solution is: $3 + 2 = 5, 5 \times 7 = 35, 3 - 2 = 1, 35 + 1 = 36$. The goal was to find as many solutions as possible in 10 minutes. In order to create a performance score in mathematics, we computed the ratio of the number of correct solutions to the number of total attempts. A ratio lower than 0.5 means that less than half of the attempts are correct, namely the number of incorrect solutions is superior to the number of correct solutions.

Results

Self-evaluation

Between-class variance was estimated to be null as was the intra-class correlation coefficient (ICC). We therefore conducted a 2 (approach vs. avoidance) by 2 (upward vs. downward) between-participants ANCOVA on self-evaluation in mathematics with initial self-evaluation in mathematics as a covariate[1]. Adjusted means are presented in Table 1.

[1] *In this analysis, we excluded one participant (SDR = 3.63).*

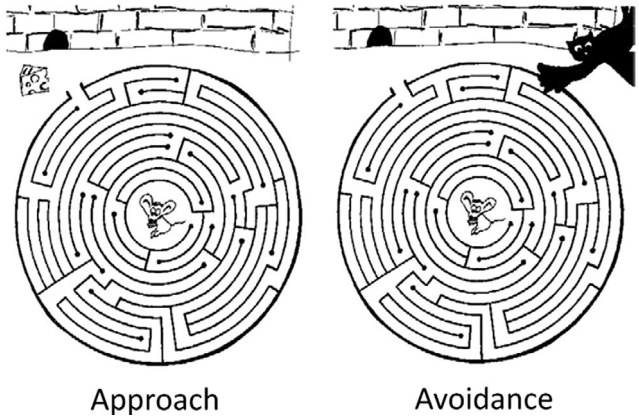

Figure 1. Experimental setting manipulating movement (approach vs. avoidance).

Only one main effect was significant: pupils' initial self-evaluation in mathematics predicted our dependent variable, $\beta = .82$, $t(223) = 21.40$, $p < .001$, $\eta^2_p = .67$, 95% CI for β [.75, .90]. Comparison and movement were not significantly related to mathematics self-evaluation ($t < 1$, *ns*). More important, and as predicted, priming approach/avoidance moderated the impact of upward/downward comparison on pupils' mathematics self-evaluation, $t(223) = 2.06$, $p = .040$, $\eta^2_p = .02$, 95% CI for the tested means [0.005, 0.219] (Figure 2)[2]. In the approach condition, comparing upward resulted in higher self-evaluation ($M_{adjusted} = 5.02$, $SE = .11$) than comparing downward ($M_{adjusted} = 4.64$, $SE = .11$), $t(223) = 2.44$, $p = .02$, $\eta^2_p = .02$, [0.036, 0.341]. In the avoidance condition, comparing upward resulted in lower self-evaluation ($M_{adjusted} = 4.66$, $SE = .11$) than comparing downward, although this effect was not significant ($M_{adjusted} = 4.73$, $SE = .11$), $t(223) = -0.47$, $p = .64$, [−0.188, 0.116] (for more details, see Appendix S2).

Performance at the 'target number' task

We conducted a 2 (approach vs. avoidance) by 2 (upward vs. downward) between-participants ANCOVA on performance in mathematics at the task (ratio scores) with pupils' initial performance in mathematics as a covariate (ICC = .10). Only pupils' initial performance in mathematics (control variable) predicted mathematics performance, $\beta = 0.29$, $t(224) = 4.57$, $p < .001$, $\eta^2_p = .82$, 95% CI for β [0.17, 0.42]. Results indicated that priming approach/avoidance did not moderate the impact of upward/downward comparison on pupils' mathematics performance, $b = 0.008$, $t(224) = .385$, $p = .70$, 95% CI for the tested means [−0.033, 0.049] (for more details, see Appendix S2).

Discussion

Our results show that approach/avoidance moderated the impact of comparison on mathematics self-evaluation, but not on performance. The reasons we failed to observe

[2] *When we performed mixed linear models with the classroom as a random factor, we observed the same conclusions (see Appendix S3).*

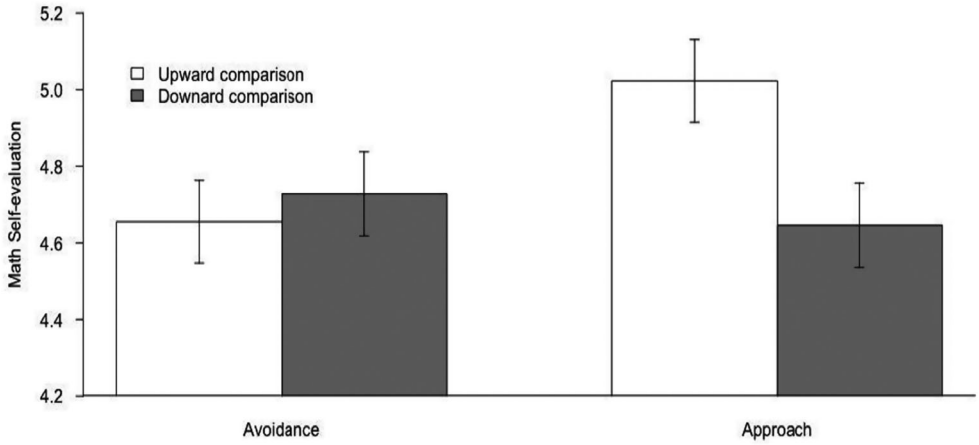

Figure 2. Mathematics self-evaluation adjusted mean as a function of movement (approach vs. avoidance) and comparison (downward vs. upward). Error bars indicate standard errors of the means.

the predicted interaction on performance could be twofold. First, the task might not be sensitive enough to detect mathematics performance after the measurement of self-evaluation, this could have reduced the effect of the experimental treatment on pupils' mathematics performance. Second, we may lack statistical power to detect an effect on two dependent variables at a time (Maxwell, 2004). Therefore, we designed a second experiment with more participants to test only our hypothesis on mathematics performance.

EXPERIMENT 2

We replicated Experiment 1, but only on mathematics performance. We predicted that approach/avoidance would moderate the impact of upward/downward comparison on pupils' mathematics performance.

Method

Participants

We recruited 439 pupils (228 girls) in their sixth grade (about 10 and half years of age) from 19 classrooms (4 public French middle schools). To increase power, we decided to double our sample size. A sensitivity analysis indicated that such a sample size enables us to detect an effect size of $\eta^2_p = .018$ ($d = .27$) with 80% of power (Cohen, 1992).

Materiel and procedure

The movement (i.e., the maze) and the social comparison (i.e., Alex's description) manipulations were strictly similar as in Experiment 1. In this experiment, we only assessed pupils' mathematics performance with the 'target number' task described above. Mathematics performance score was again computed as the ratio between the number of attempts used to find a maximum of solutions and the number of correct solutions. Before

the comparison target check, we asked pupils about the goal of the questionnaire.[3] Finally, we checked whether the upward comparison target was perceived as better than the downward comparison target, by asking pupils to rate Alex's performance in mathematics on a scale from 0 (very low) to 7 (very high). To control for initial pupils' mathematics ability, in this experiment, we used the average cumulative grade (at the current trimester) as reported by their teachers.[4] In the French education system, grades are given on a scale ranging from 0 to 20 (higher scores reflecting a higher performance; for more details, see Appendix S4).

Results

Experimental check

As expected, pupils rated Alex's performance as lower in the downward comparison (M = 2.80, SD = 1.15), than in the upward comparison condition (M = 6.10, SD = 1.26), $t(409) = 27.51$, $p < .001$, $\eta^2_p = .65$, [1.523, 1.758].

Performance at the 'target number' task

Between-class variance was estimated to be quasi-null (<.00001) as was the intra-class correlation coefficient (ICC = .0023). We conducted a 2 (approach vs. avoidance) by 2 (upward vs. downward) between-participants ANCOVA on performance at the task in mathematics (z-scores) with pupils' initial performance in mathematics as a covariate.[5] Adjusted means are presented in Table 1. As expected, pupils initial mathematics performance predicted mathematics performance, $\beta = 0.36$, $t(433) = 8.22$, $p < .001$, $\eta^2_p = .13$, 95% CI for β [0.28, 0.45]. Neither comparison nor movement were significantly related to mathematics performance ($t < 1$, *ns*). As predicted, approach/avoidance moderated the impact of upward/downward comparison on pupils' mathematics performance, $t(433) = 3.50$, $p = .001$, $\eta^2_p = .03$, 95% CI for the tested means [0.020, 0.069] (Figure 3).[6] In the approach condition, comparing upward resulted in higher performance ($M_{adjusted} = .82$, $SE = .03$) than comparing downward ($M_{adjusted} = .75$, $SE = .03$), $t(433) = 1.97$, $p = .05$, $\eta^2_p = .009$, [0.000, 0.071]. In the avoidance condition, comparing upward resulted in lower performance ($M_{adjusted} = .77$, $SE = .03$) than comparing downward ($M_{adjusted} = .87$, $SE = .03$), $t(433) = 2.99$, $p = .003$, $\eta^2_p = .009$, [−0.089, −0.018] (for more details, see Appendix S5).

Discussion

In Experiment 2, we predicted that approach/avoidance would moderate the impact of upward/downward comparison on pupils' mathematics performance. Our results are in line with our prediction: we observed an assimilation effect in the approach condition, and a contrast effect in avoidance condition.

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[3] *None of the pupils guessed the goal of the experiment.*

[4] *As a precaution and in the eventuality of any difficulty to obtain trimester grades by schools, we also collected teacher ratings of pupils' mathematics performance on an 11-points scale. We did not analyze this variable.*

[5] *In this analysis, we excluded one participant (*SDR = *3.84).*

[6] *Mixed linear model with same parameter leads to the same conclusion (see Appendix S6).*

Table 1. Adjusted means and standard errors as a function of movement and social comparison

		Approach		Avoidance		Effect size (η^2_p)		
		Downward SC (n = 56)	Upward SC (n = 58)	Downward SC (n = 57)	Upward SC (n = 58)			
	Variables	*M (SE)*	*M (SE)*	*M (SE)*	*M (SE)*	Social comparison	Movement	Interaction
Exp. 1	Self-evaluation	4.64 (.11)	5.02 (.11)	4.73 (.11)	4.66 (.11)	.009	.008	.02*
	Performance	.77 (.04) (n = 109)	.81 (.04) (n = 109)	.80 (.04) (n = 110)	.79 (.04) (n = 111)	.003	.004	.001
Exp. 2	Performance	.75 (.03)	.82 (.03)	.87 (.03)	.77 (.03)	.001	.006	.03**

**$p < .001$, *$p < .05$.

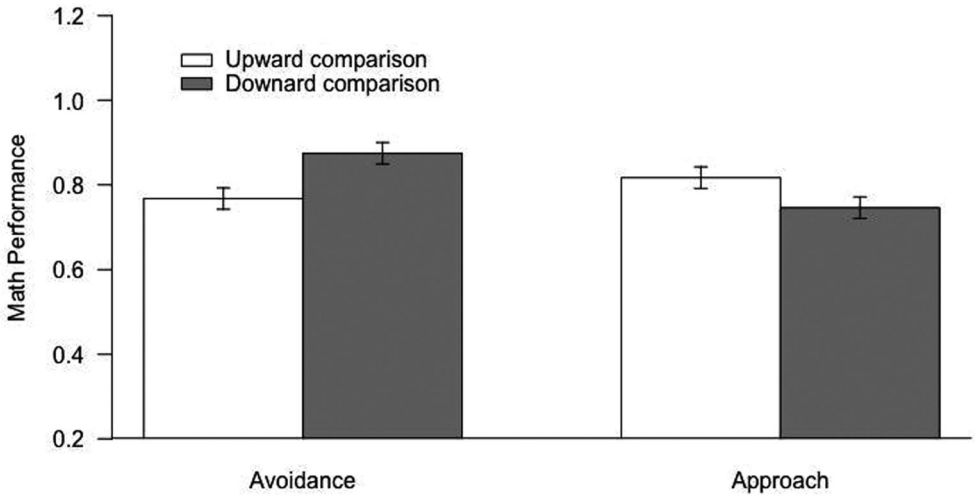

Figure 3. Mathematics performance mean as a function of movement (approach vs. avoidance) and comparison (downward vs. upward). Error bars indicate standard errors of the means.

GENERAL DISCUSSION

We aimed at examining whether approach/avoidance would moderate social comparison effects on both self-perception and performance among pupils. To do so, we primed approach/avoidance and then exposed pupils to upward/downward social information and assessed self-evaluation (Experiment 1) and performance at a mathematical task (Experiments 1 and 2). As predicted, approach/avoidance moderated social comparison on both self-evaluation (Experiment 1) and performance (Experiment 2). In the approach condition, participants' self-evaluation and performance moved toward the target value (assimilation), while it moved away from the target value (contrast) in the avoidance condition (only in Experiment 2).

It is worth noting that our results replicate previous work showing that approach leads to assimilation while avoidance leads to contrast. First, Fayant et al. (2011) showed that priming approach/avoidance (with the same maze's task) moderated the effect of social comparison on self-evaluation. Second, Nussinson et al. (2010) showed that the execution of approach/avoidance behaviours moderated the priming effect on performance (general knowledge questions). By replicating those effects, we therefore contribute to the estimation of these effects size which is essential for cumulative science (Brandt et al., 2014). The expected interaction explained 2% of self-evaluation ($\eta^2_p = .02$, $d = 0.29$, Experiments 1 and 2) and 3% of performance ($\eta^2_p = .03$, $d = 0.35$, Experiment 2). These effects are descriptively somewhat smaller than the ones obtained in Fayant et al. (2011, $.03 < \eta^2_p < .06$) and probably more precise estimations given that our sample sizes are more larger. Interestingly, a recent meta-analysis failed to report a social comparison effect on behaviour (Gerber, Wheeler, & Suls, 2018) while we observe significant performance assimilation and contrast ($d = 0.19$). These results call for additional replications and well-powered studies that examine contrastive and assimilative dynamics on performance.

Although small, the effects under investigation in this article might have great practical implications especially when the outcome like school performance is affected by a variety of factors like past performance, socio-economic status, etc. In addition, upward social

comparison at school is really frequent, and this can generate strong cumulative effects on the long run (Greenwald, Banaji, & Nosek, 2015).

The fact that approach/avoidance moderates the effect on self-evaluation as well as on performance has theoretical implications. Here we reasoned that approach/avoidance did signal self-value shifts toward or away from the direction of the target and activated goal-directed behaviours. One reason for that may be that approaching (vs. avoiding) a comparison target reframes such a target as a possible self, a person one can become in the future (Lockwood & Kunda, 1997; Markus & Nurius, 1986). As possible selves are self-goals, they are included in the self-representation and should lead to assimilation (Blanton, 2001). Moreover, when these possible selves are positive, as in the case of upward comparison, they should motivate behaviours to reduce the discrepancy between the self-value and the possible self-value (Boldero & Francis, 2002). On the contrary, avoiding the comparison target should exclude the target from the self thus leading to contrast effects (Bless & Schwarz, 2010). Contrasting with an upward target is especially threatening (Muller & Fayant, 2010) and can be debilitating (Vancouver & Tischner, 2004). Consequently, priming approach before upward comparison should positively affect self-evaluation and goal-directed behaviours (Boldero & Francis, 2002). An alternative explanation of simultaneous self-evaluative and behavioural assimilation though might rely on the ideomotor activation principle: priming certain behavioural features automatically activates the corresponding behaviour (Bargh, Chen, & Burrows, 1996; Dijksterhuis & van Knippenberg, 1998). Although such an explanation has been recently questioned (Doyen, Klein, Pichon, & Cleeremans, 2012; O'Donnell & Nelson, 2018), future research should further investigate the mechanism(s) responsible for behavioural assimilation and contrast.

These studies replicated past results observed with adults (Fayant et al., 2011; Nussinson et al., 2010) with pupils in a school context. This implies that social comparison mechanisms at work for adults are the same for pupils, even though they evolve in different contexts. Indeed, pupils from kindergarten to high school evolve with the same classmates, while adults, at least college students, do not have stable reference groups (Dijkstra et al., 2008). Although pupils are capable of comparing with others since pre-school, the use of social comparison evolves with age: self-evaluations seem to be affected only around the age of 9 (Dijkstra et al., 2008). Importantly, some results highlight the role of institutions in the development of these social comparisons and their negative effect: Schools that are focussed on performance goals reinforce the role of grades and social comparisons at school (Butera et al., 2021). And this is especially true for middle schools as compared to elementary schools (Meece, Anderman, & Anderman, 2006). Therefore, the effect of social comparison should evolve between elementary and middle schools. Although the present experiments show similar interaction patterns in elementary (Experiment 1) and middle schools (Experiment 2), further research should examine the evolution of social comparison effects as well as their relationship with school climates (Butera et al., 2021).

From a practical perspective, these results imply that students could be motivated to reduce the discrepancy with the upward comparison even without experiencing negative feelings (Boldero & Francis, 2002). This reasoning is in line with a recent article examining the motivational power of social comparison that concludes that moderate upward comparisons are the best comparison targets to facilitate goal pursuit (Diel & Hofmann, 2019; see also Rijsman, 1974; Seta, 1982). Future research should examine whether making pupils experience approach versus avoidance could be a handy tool for short interventions leading pupils to compare positively with framed upward targets.

These studies have some limitations, however. First, although we measured performance in both experiments, we observed an effect only in Experiment 2. This could be due either to the fact that Experiment 2 had more statistical power to detect the effect as we increased our sample size and/or to the fact that there was no interference due to measuring self-evaluation before performance. This raises questions about the possibility to assess positive effects on both measurements: is reporting positive evaluations enough to cancel out the motivational effect of approached upward comparison? Such a question is crucial to examine whether these constructs co-occur as predicted by a goal-directed approach, or if one mediates the other.

Second, our conclusion about assimilation effects is limited insofar as we did not have a control group. Thus, our data only allow us to conclude that under approach, upward comparison leads to better self-evaluation and performance than downward comparison. However, we cannot conclude whether assimilation occurs in upward as well as downward conditions, and to the same extent. To draw these conclusions, a control group in which no comparison information would be provided is required (Bruchmann, 2017; Gerber et al., 2018). Some results already suggest upward and downward comparisons do not impact self-evaluations to the same extent showing a smaller contrast effect with better off than with worse-off others (Bruchmann, 2017). Given the limited number of studies with a control group (Gerber et al., 2018), we need further studies to examine more thoroughly the magnitude of downward versus upward approach effects.

To conclude, this research presents initial evidence suggesting that approach and avoidance can lead to assimilation and contrast effects on pupils' self-evaluation and performance. This research suggests that priming approach could reshape upward (vs. downward) targets into inspiring ones, by motivating pupils and making them feel good about themselves. We believe that it paves the way toward potential interventions to generate new dynamics into the classroom adapted for pupils.

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Conflict of interest

All authors declare no conflict of interest.

Data availability statement

The data that support the findings of this study are openly available in OSF at https://osf.io/uyhv8/?view_only=3e6e0720b34c411780d22008956d87a0

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix S1. Instructions and materials of Experiment 1.

Appendix S2. Data files and R scripts for Experiment 1.

Appendix S3. Mixed Model Results for Experiment 1.

Appendix S4. Instructions and materials of Experiment 2.

Appendix S5. Data files and R scripts for Experiment 2.

Appendix S6. Mixed Model Results for Experiment 2.