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1 Stereotype threat among children attending adapted courses (7-10 years old):

2 A study in a quasi-ordinary classroom

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1 The aim of the present studies was to explore if students attending AC (adapted classes -
2 remedial training, 3 times a week; 7-10 years) have a bad reputation (are considered as less
3 able than RC students – Regular Classes) and if this bad reputation can make them vulnerable
4 to stereotype threat. Study 1 assessed self-perceptions of students from adapted (AC) and
5 regular classes (RC) as well as other-perceptions of RC students and meta-perceptions of AC
6 students. Results showed that RC students perceived themselves more positively than they
7 perceived AC students and that self-perceptions of AC students were less positive than those
8 of RC students. They also showed that the meta-perceptions of AC students were similar to
9 the other-perceptions of RC students. Study 2, ran 15 days after, showed that the performance
10 of AC students was impaired when under stereotype threat. Study 3 replicated Study 2 and
11 showed that the effect of stereotype threat on performance was still there even after
12 controlling for initial self-perceptions. It also showed that self-perceptions of both groups
13 lowered after the threat.

14

15 Key words: Stereotype threat, bad reputation, performance, 7-10 years old students.

16

17 L'objectif de ces études est d'explorer si des élèves faisant partie de Classes
18 d'Adaptation (appelées Classes CLAD, dans lesquelles une aide spécialisée est apportée aux
19 élèves en difficulté, 3 fois par semaine; 7-10 ans) sont victimes d'une mauvaise réputation
20 (sont perçus comme moins capables que les élèves en Classe Normale – CN) et si cette
21 mauvaise réputation peut les rendre vulnérables à la menace du stéréotype. L'étude 1 évaluait
22 les auto-perceptions des élèves en CA et CN, de même que les hétéro-perceptions des élèves
23 en CN et les méta-perceptions des élèves en CA. Les résultats ont montré que les élèves en
24 CN se perçoivent plus positivement qu'ils ne perçoivent les élèves en CA et que l'auto-
25 perception des élèves en CA est inférieure à celles des élèves en CN. Ils ont également montré

1 que la méta-perception des élèves en CA était similaire à l'hétéro-perception des élèves en
2 CN. L'étude 2, réalisée 15 jours après, a montré que les performances des élèves en CA a été
3 affectée par la menace de stéréotype. L'étude 3 a répliqué l'étude 2 et a montré que les effets
4 de la menace de stéréotype sur la performance étaient toujours visibles, même après avoir
5 contrôlé l'effet des auto-perceptions initiales. Ils ont également montré que les auto-
6 perceptions des deux groupes d'élèves diminuent après la menace.

7

8 Mots clefs: Menace de stéréotype, mauvaise réputation, performance, élèves de 7 à 10 ans.

9

1 Public schools offer in many countries basic and solid education that facilitates access
2 to universities and higher education institutes. This system is generally quite efficient in
3 France principally because it is based on shared and tested methodologies. But what works for
4 the majority may not work for all, and this system turns out to be less efficient for some
5 students because they learn faster and get bored during school, or because they learn slowly.
6 To compensate for this, schools set specific plans to allow slower learners to catch up. Those
7 plans often consist of opening specific classes in which special teachers help these students to
8 catch up with the program. The aim is to reintegrate children into the regular system. Many
9 forms of such system exist in many occidental countries, which differ in the amount of
10 specialized/specific courses children have to take. This can consist of a few hours' courses
11 during the week after school time or of being inserted in a full-time specialized class. The
12 present studies were run with remedial classes called CLAD (for 'CLasse d'ADaptation' or
13 'ADAdped CLass'). This system aims at helping students from elementary schools (from 2nd
14 to 4th grade) acquiring specific academic knowledge they did not learn during the year by
15 giving them two or three times a week an hour of class with a specialized teacher. Students
16 are still part of their normal class during regular school time but stay longer some days during
17 the week to take this remedial training. While this system may be quite helpful for students,
18 its positive impact on learning and performance may, we think, have side-effects that are not
19 always foreseen. Indeed, if that system is implemented to help students, it is also intended to
20 students who learn slowly. Given that in our occidental societies behaviors are often attributed
21 to personal instead of situational factors (Ross & Nisbett, 1991), even by children (Stipek &
22 Tannatt, 1984), it is likely that those students are perceived as being slower and less smart,
23 and as such are prone to be, even if temporally, stigmatized and victim of what is called
24 stereotype threat. So the aims of those studies are to 1) show that students attending adapted
25 classes (AC) have a bad reputation regarding their academic abilities and are conscious of this

1 bad reputation, and 2) to explore if this bad reputation impacts their self-perception (Study 1).
2 It is also aimed at examining whether this bad reputation is powerful enough to impact their
3 performance when a task is presented as a test. Study 2 and 3 explore if students attending AC
4 are vulnerable to stereotype threat because of their (temporally) belonging to this specific
5 adapted system (Study 2) and/or because of their initial low self-perception (Study 3).

6 **Stereotype threat**

7 Stereotype threat is “*being at risk of confirming, as self-characteristic, a negative*
8 *stereotype about one’s group*” (Steele & Aronson, 1995, p. 797). Far from being a kind of
9 chronic vulnerability because of one’s group membership, stereotype threat arises in specific
10 situations where an individual is at risk of fulfilling the stereotype associated with his or her
11 group membership. Many studies have shown that Black American students perform less well
12 when a task is presented as diagnostic of their intellectual abilities (Steele & Aronson, 1995)
13 or when the lack of abilities of members of their group is made explicit (Cadinu, Maass,
14 Frigerio, Impagliazzo, & Latinotti, 2003). The same was generally observed with other ethnic
15 minorities such as Latinos in the States (for a review, see Gyll, Madon, Prieto & Scherr,
16 2010) or French-Arab students (Chateignier, Dutrévis, Nugier, & Chekroun, 2009). Also,
17 women, who are allegedly less able in Math, often perform less well on a Math test when it is
18 presented as a test of quantitative capacities (Schmader & Johns, 2003) than when it is
19 described as a test/task not relevant to Math. The same was also typically observed with many
20 other social groups for which it exists a negative stereotype such as low Socio Economic
21 Status students (Croizet & Claire, 1998) or even students from psychology majors tested on
22 their learning skills while explicitly compared with students from medical school majors
23 (Dutrevis & Croizet, 2005).

24 Stereotype threat is foremost a situational threat (Steele & Aronson, 1995). This is the
25 situation and its meaning for the individuals that make them particularly vulnerable. For

1 example, Shih, Pittinsky, and Ambady (1999) asked Asian American women to take a Math
2 test under different implicit activations, either of their women identity or of their Asian
3 identity. While women performed better on the Math test when their Asian identity was
4 activated, they performed worse when their gender identity was activated. This was replicated
5 more recently with a verbal test (Shih, Pittinsky, & Trahan, 2006).

6 However, if most studies were run on individuals with an enduring group membership,
7 other studies have shown that a history of stigmatization was not always necessary for
8 stereotype threat to appear (Leyens, Désert, Croizet, & Darcis, 2000). For example, Koenig
9 and Eagly (2005) showed that the performance of men on a social sensitivity test was lower
10 than that of women when the test was presented as diagnostic of this ability and when men
11 were told that women generally succeeded better than men. In a more extreme test of this
12 idea, Martiny, Roth, Jelenec, Steffens, and Croizet (2012) showed in a set of 3 studies, that
13 the deleterious effects of stereotype threat can also appear with totally newly created groups.
14 Using a minimal group paradigm, the authors threatened their participants by telling them that
15 members of their group (individuals who have a convex or a concave information processing
16 style) usually perform less well on tests assessing this ability. Results showed that newly
17 created group members underperformed when informed about the bad reputation of their
18 group (presented as a fact or as a suspicion) compared with non-threatened group members.
19 This was especially the case of highly identified group members.

20 So, even if stereotype threat is a quite powerful phenomena that can impact
21 performance of many members of stereotyped groups (e.g., women, Black and Hispanic
22 Americans, low SES students) on many abilities (Beilock & McConnell, 2004; Chalabaev et
23 al., 2013; Chateignier, Chekroun, Nugier, & Dutrévis, 2011; Hively & El-Alayli, 2014), those
24 studies show that neither a history of stigmatization nor a well-grounded stereotype are
25 necessary for stereotype effects to occur.

1 One of the reasons may be, as stated by value expectancy theory (Wigfield & Eccles,
2 2000), that the stereotype was partly endorsed and impacted the self-schemata and ability
3 beliefs of the victims (Maass & Cadinu, 2003). If many stigmatized groups don't have a low
4 self-esteem because of their ability to cope effectively with identity threats (Crocker & Major,
5 1989), some group members can at times internalize the stereotype that is associated with
6 their group or at least believe it is true for them. Several studies have shown that believing or
7 endorsing a stereotype can be a handicap in coping with stereotype threat (Bonnot & Croizet,
8 2007a, 2007b; Chalabaev, Sarrazin, & Fontayne, 2009; Schmader, Johns, & Barquissau,
9 2004). However, because no studies to the best of our knowledge directly tested the impact of
10 initial self-perceptions on the performance of people under stereotype threat, an explanation
11 in terms of expectancies effects cannot be totally ruled out.

12 **Stereotype threat and children**

13 Research on stereotype threat and its deleterious effects on children performance is
14 scarcer but nevertheless tend to show that students also can be the victims of stereotype threat
15 from the age of 7 years old (Désert, Préaux, & Jund, 2009; Muzzatti & Agnoli, 2007; Neuville
16 & Croizet, 2007). Only two studies reported stereotype threat effects with children as young
17 as 5 (Ambady, Shih, Kim, & Pittinsky, 2001; Tomasetto, Alparone, & Cadinu, 2011). Among
18 all those studies (for a review, see Ganley et al., 2013), most were run on girls and
19 performance in Math (Huguet & Régner, 2007; Muzzatti & Agnoli, 2007). Only two studies
20 concerned other abilities and groups. One concerned intellectual abilities of children from low
21 SES backgrounds compared to high SES backgrounds (Désert et al., 2009) and the other one
22 concerned the lower performance at school of boys compared to girls (Hartley & Sutton,
23 2013). None were run with another type of stereotyped group, which is our interest here.
24 What about a less enduring group membership such as belonging to AC? Can a negative
25 stereotype be associated with this specific group, at least in the context of school? Also, can

1 students, newly members of this group, be conscious of such a belief toward them, and does
2 this consciousness impact their self-perception? Finally, can this belief impact the
3 performance of those who hold it?

4 As already stated by Galdi, Cadinu, and Tomasetto (2014) as well as other researchers,
5 specific prerequisites are necessary for stereotype threat to impact performance of children.
6 First of all, children must have developed an awareness of distinct categories, that is, they
7 must be able to distinguish categories in their environment and to identify themselves as
8 members of some of those categories. This is often the case by the age of 3 or 4 (Martin &
9 Ruble, 2010). Moreover, they must be conscious that categories are associated with specific
10 attributes and valence. This is the case by the age of 4 for main categories such as gender.
11 However, refinements in the perception of groups such as the awareness of status differences
12 are better understood by the age of 6 or 7 (Martin & Ruble, 2010). Moreover, it is important
13 to distinguish between stereotypic beliefs (what they really think about groups: other groups -
14 other-stereotype, or their own - self-stereotype) and stereotypic consciousness which
15 corresponds to their awareness of the stereotypes held by others (i.e., meta-stereotype if it
16 concerns beliefs toward one's own group). Stereotypic consciousness appears a little bit latter
17 than stereotypes, around 7, as it presupposes that the child is able to infer others' social beliefs
18 (McKown & Weinstein, 2003).

19 This is coherent with what was found in the literature on stereotype threat run with
20 children. Children, as young as 6, know the stereotype that is associated with their gender
21 group or with their socio-economic origin. For example, Désert et al. (2009) have shown that
22 children as early as 6 years old believed that high SES children do better at school than low
23 SES children. This was especially the case when the students were in an evaluative situation
24 as this belief impacted performance. In a more recent study, Hartley and Sutton (2013)
25 showed, using pictured scenarios, that children of both gender believed that girls were better

1 at school than boys by the age of 7-8 years old. This belief increased with age. More
2 interestingly, the authors showed that those children also developed by the age of 7 a meta-
3 stereotype, reporting that adults believed that girls performed better at school than boys.
4 When told that girls were better on tests, boys underperformed compared to girls. In the non-
5 threatening condition, boys performed as well as girls. This study is interesting as it shows
6 that by the age of 7, children can form stereotypes as well as meta-stereotypes and be
7 impacted by them. It also showed, as with studies ran with adults, that a history of
8 stigmatization is not necessary for stereotype threat effects to appear. However, as already
9 mentioned, all those studies were run with enduring groups' memberships. Can children, as
10 young as 7 years old, form specific beliefs about a newly formed group and can those beliefs
11 be known and shared by the members of that group? If this is the case, can those beliefs be
12 powerful enough to disrupt performance of children belonging to that group? These were the
13 aims of the present three studies.

14 More specifically, we tried to assess the self and meta-perceptions of students aged
15 from 7 to 10 years old attending an adaptive course and to assess the self and other-perception
16 of students attending a regular course (Study 1). We also explored whether those students
17 attending adaptive courses were susceptible to stereotype threat (Study 2), over and above
18 lower initial self-perceptions (Study 3). As mentioned, the impact of stereotype threat on
19 performance could be due totally or partially to initial lower self-perceptions of children.
20 Finally, Study 3 also aimed at testing the impact of stereotype threat and initial self-
21 perceptions on post-task self-perceptions which, to our knowledge, has never been done
22 before.

23 All studies were run in the children's school, thereby increasing ecological validity
24 (Désert et al., 2009; Huguet & Régner, 2007). Perceptions were assessed during school time
25 by the teacher about 3 months after the beginning of the school year and the experiments

1 (induction of stereotype threat) were run individually in an adjacent room during school time
2 by a female experimenter.

3 **Study 1**

4 In this Study, we explored the self-perceptions of students from Regular Classes (RC)
5 and from Adapted Classes (AC), as well as the meta-perception of AC children and the other-
6 perception of RC children. If, as suggested, RC children perceive their AC counterparts as
7 being less able, their self-perception should be higher than their perception of AC children
8 (hypothesis 1). Additionally, if AC students are aware of their bad reputation, their meta-
9 perception (how they think they are perceived by RC children) should match how RC students
10 perceive them. If not, AC children's meta-perception should be more positive than the
11 perception RC students hold about them (hypothesis 2). Finally, if AC students agree with this
12 bad reputation, their self-perception should be lower than that of RC children (hypothesis 3)
13 and meet their meta-perception.

14 **Method**

15 *Participants and Procedure*

16 Participants were 104 elementary school students (53 girls, 51 boys, aged 7-10¹) from
17 a school in a low socio-economic area of the town. Their mean age was 8.36 years ($SD=1.07$).
18 Among them, 61 were from a RC (31 girls, 30 boys; $M_{age}=8.28$, $SD=0.92$) and 43 from an
19 AC (20 girls, 23 boys, $M_{age}=8.49$, $SD=1.24$). Among them, 37 were 2nd grade ($M_{age}=7.41$,
20 $SD=0.50$), 42 from 3rd grade ($M_{age}=8.48$, $SD=0.67$) and 25 from 4th grade ($M_{age}=9.40$,
21 $SD=0.50$).

22 Between two lessons, the teacher asked all her students to answer 7 questions taken
23 from the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children
24 of Harter and Pike (1984), using its regular assignment (“*How do you perceive yourself?*”).

¹ Three children were excluded from that sample because of their age. One was 6 years old, one 11 and the other 12. The youngest might have some trouble with answering the scale, the older ones because they were at least 2 years late on their normal course of studies.

1 RC students were then invited to answer a second time the 7 items but with an other-
2 perception assignment (“*How do you think students of adapted classes are?*”). AC children
3 were invited to answer these items with a meta-perception assignment (“*How do you think*
4 *students from normal classes perceive you?*”).

5 **Measures**

6 The Perceived Competence and Social Acceptance for Young Children of Harter and
7 Pike (1984), translated and validated in French by Gobancé, Rosnet and Gillet (in revision,
8 see also Gobancé, 2009) was used to assess perceptions. This scale assesses self-esteem in a
9 way that is adapted for young children (6-8 years old) through the use of pictures depicting
10 children (boys or girls) performing tasks or actions. First, children were asked to choose
11 which of the children from the 2 pictures, both depicting the same action, was most like him
12 or her. The first picture depicted an action that was performed poorly and the other one the
13 same action performed well. Once the child had chosen a picture, she/he was asked to choose
14 between two circles, a small one meaning “*I’m quite like him/her*” and a big one meaning
15 “*I’m really like him/her*”. Score were assessed using this 4-point rating scale.

16 Seven items were taken from this scale among the 22 possible items of the French
17 version: 1 item concerned general knowledge, 2 concerned skills in Math, 2 skills in writing
18 and spelling, 1 skills in sports, and 1 concerned social acceptance. The same scale with the
19 same format was used for all children.

20 An exploratory factorial analysis run on the measure showed two dimensions, one
21 with the social competence item, the other with all the other items. So, item 1 was deleted
22 from subsequent analysis. After this deletion, alpha was equal to .63 for self-perception (all
23 participants), .65 for other-perception (students from normal classes), and .71 for meta-

1 perception (AC students²). In addition, and with the agreement of children's parents, the
 2 teacher reported the type of class, the age and sex of each student.

3 **Results**

4 To test for our hypothesis and in order to make all the comparisons we needed, we ran
 5 a mixed ANOVA with class as a between factor (Regular Class vs Adapted Class) and
 6 perceptions as a repeated measure (self-perception vs perceptions of AC³). Results showed
 7 that this interaction was significant ($F[1, 102]=5.70, p<.02, \eta^2=.05$). We then ran a series of
 8 post-hoc analysis (Tukey HSD) to test for specific hypotheses.

9 To check whether RC students perceive their counterparts from AC as less able
 10 (hypothesis 1), we compared self-perceptions of RC students to the perception they had of AC
 11 students. As shown in Table 1, results indicated that the self-perception of RC students was
 12 higher ($M=3.51, SD=.40$) than their perception of AC students ($M=2.14, SD=.56, p<.001$).

13 **Table 1**
 14 Mean and standard deviations for students' self-perceptions and perceptions of AC depending
 15 on their type of class (RC vs AC)

Self-perceptions		Perceptions of AC	
Regular Class	Adapted Class	Regular Class	Adapted Class
3.51	3.17	2.14	2.16
(0.40)	(0.66)	(0.57)	(0.56)

16
 17 To examine whether AC students were aware of their bad reputation (hypothesis 2),
 18 we compared their perception of AC (meta-perception) to RC students' perceptions of AC's
 19 students (other-perception). Results showed that the meta-perception of AC students

² Note that students completed the scales during class with their regular teacher, which might explain the low alphas. However, this was important because we did not want the students to think about it as an experiment (which might impact results of Study 2).

³ Which of course correspond for AC students to their meta-perception and for RC students to their other-perception.

1 ($M=2.16, SD=.70$) did not differ from the other-perception of RC students ($M=2.13, SD=.56$;
2 *ns*). This suggests that AC students were aware of their bad reputation. To check whether AC
3 students endorsed the negative view of their group membership, we compared their self-
4 perceptions with those of RC students. Results showed that self-perceptions of AC students
5 were more negative ($M=3.17, SD=.66$) than those of RC students ($M=3.51, SD=.40, p<.02$).

6 Finally, we also compared the self-perception and meta-perception of AC children.
7 Results showed that they perceived themselves more positively ($M=3.17, SD=0.66$) than they
8 thought they were perceived by RC's students ($M=2.16, SD=0.70; p<.001$). So, if AC students
9 have a lower self-perception of themselves than have RC students, this self-perception does
10 not meet their meta-perception.

11 **Discussion**

12 The aim of this study was to see if a bad reputation was associated with children
13 attending AC. More specifically, a first hypothesis stated that the way RC children perceive
14 themselves would be much more positive than the way they perceive AC students. This was
15 what we found. However, this can be partly due to in-group favoritism, which has been found
16 among children as soon as the age of 5 (Dunham, Baron, & Carey, 2011), or to self-
17 enhancement motives that often drive self-perceptions of adults (Dauenheimer, Stahlberg,
18 Spreemann, & Sedikides, 2002; Sedikides & Alicke, 2012; Sedikides & Gregg, 2008) as well
19 as children (Trzesniewski, Kinal, & Donnellan, 2011). Indeed, children as young as 4 often
20 over predict their performance, past and future, even in the face of failure (Stipek & Mac Iver,
21 1989). This effect decreases with age (by 8-9 years old). They also overrate their own abilities
22 compared to that of their peers, again, the difference between self and peer's rating decreasing
23 with age (Deborah Stipek & Tannatt, 1984). Note that our results showed that the difference
24 of perception was quite large. Moreover, our results also showed that the way RC students
25 perceived AC students (other-perception) was equivalent to the way AC students thought they

1 were perceived (meta-perception of AC students). So, even if self-enhancement motives
2 might explain this difference between the self- and other-perceptions of RC students, AC
3 students were conscious of being perceived negatively and this perception seemed quite
4 correct in regard to what RC students thought of them.

5 Finally, our goal was to see if this bad reputation impacted the self-perception of AC
6 students. Our results showed that they did perceived themselves more negatively than did RC
7 students. However, this self-perception did not meet their meta-perception. This means that
8 they did not seem to have totally internalized their bad reputation yet, even if their initial self-
9 perception was lower. However, this is difficult to tell if AC students' lower self-perceptions
10 were due to their membership to this lower status group or if they were lower to begin with.
11 Research on stigmatization showed that not all lower status groups develop a lower self-
12 esteem and many personal and situational factors can impact the self-esteem of children
13 (Crocker & Major, 1989; Martinot & Audebert, 2003; Redersdorff & Martinot, 2009). More
14 research is needed, using longitudinal design to test for the effect of the inclusion in those AC
15 on the self-perceptions of children.

16 **Study 2**

17 The aim of study 2 was to explore if the bad reputation associated with attending to an
18 AC can impact students' performance in a threatening situation, that is when a task is
19 presented as a test (threat) instead of a game (no threat). Given that AC students seemed to be
20 aware of their bad reputation and had a lower perception of themselves, they should perform
21 less successfully when a task is presented as a test (i.e., as being relevant regarding their
22 abilities) than when it is presented as a game (i.e., as irrelevant regarding their abilities).

1 **Method**

2 ***Participants and Procedure***

3 Fifty seven elementary school students (33 girls, 29 boys, aged 7-10⁴) taken from the
4 sample of Study 1 volunteered to take part on this experiment which took place 15 days after
5 Study 1⁵. Their mean age was 8.68 years ($SD=1.09$). Among them, 29 were from a RC (15
6 girls, 14 boys, $M_{age}=8.86$, $SD=1.06$) and 28 were from an AC (14 girls, 14 boys, $M_{age}=8.50$,
7 $SD=1.11$). Among them, 21 were in their 2nd grade, $M_{age}=7.50$, $SD=0.51$), 20 from 3rd grade
8 ($M_{age}=8.9$, $SD=0.49$) and 16 from 4th grade ($M_{age}=10$, $SD=0$).

9 The experimenter (a woman) took children from classrooms to a little adjacent room
10 and proposed them to play a game (non-threatening condition) or to take a test of their general
11 abilities (threatening condition). After agreement, she showed them a memory game and
12 asked them to perform it. The Memory[®] is well-known card game in which pairs of cards
13 (depicting objects or animals) are presented face down on a table⁶. The task consists in
14 randomly flipping two cards and see if they match. If they do match, the cards are kept aside.
15 If not, the cards are turned back over and two other cards must be flipped. All pairs have to be
16 found as fast as possible. The game is over when all the pairs have been found. This game
17 thus requires cognitive abilities such as concentration, observation and spatial memory. The
18 more one is able to memorize cards, the faster he/she completes the game. After the
19 experimental task, the experimenter praised and thanked children and sent them back to their
20 classroom.

21 ***Measures***

⁴ Five children were excluded for the same reasons as in Study 1. One was 12 years old, 4 were 11.

⁵ Only children who had a written consent from their parents were allowed to participate.

⁶ This game was chosen for several reasons. First, it is a well-known game with well-known rules that do not necessitate particular explanation or specific skills to be understood. Second, it doesn't depend on prior knowledge and as such is less prone to be affected by age or class. Finally, it can be presented as a game (which it is) or as a test of abilities (which is believable since it requires abilities in concentration, memory and observation).

1 **Performance.** Performance was assessed via the time students took to completely
2 perform the memory task (in seconds). It was assessed with a stop watch visible to the child.
3 Additionally, the experimenter wrote children's class (RC or AC), sex and age.

4 **Results**

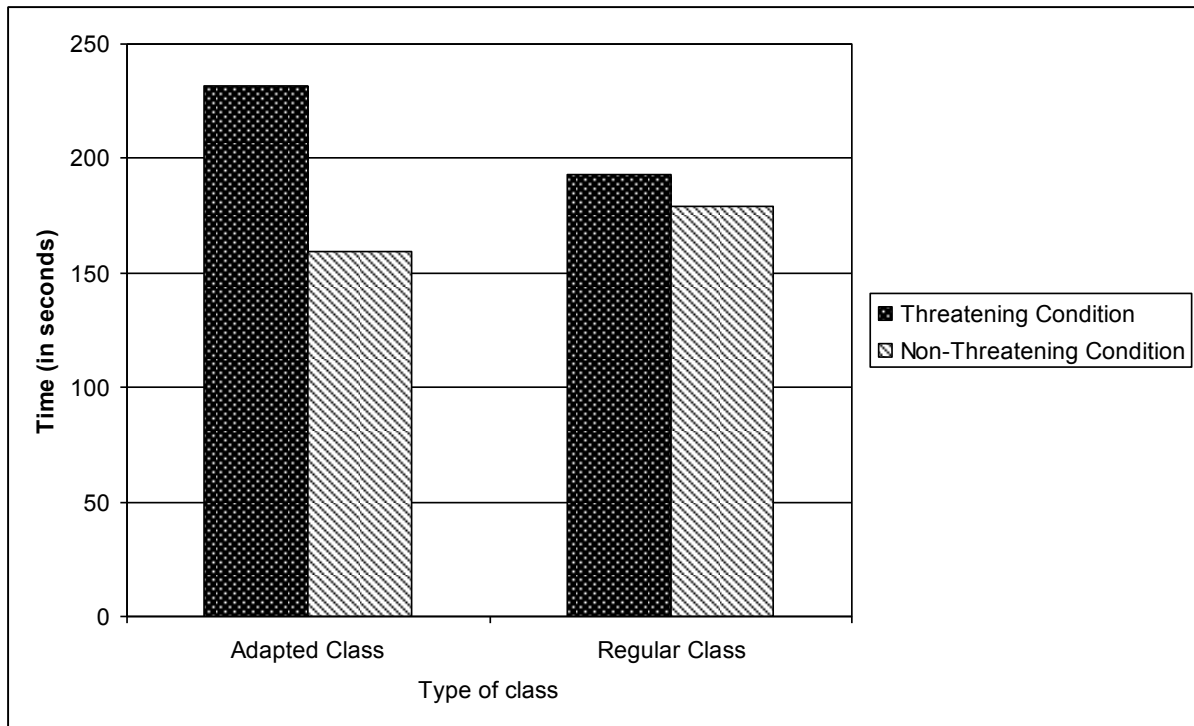
5 To test for stereotype threat effects on children's performance, an Ancova was run
6 with the type of class (Regular vs Adapted) and condition (Game vs Test) as independent
7 variables, time as the dependent variable, and age as a covariate. Results showed a significant
8 effect of condition ($F[1, 52]=43.76, p<.001, \eta^2=.49$) . Students were faster when the task was
9 presented as a game ($M_{second}=169.07; SD=18.92$) than when it was presented as a test (M_{second}
10 $=211.07; SD=33.09$). Moreover, there was an interaction between the type of class and
11 condition ($F[1, 52]=22.85, p<.001, \eta^2=.30$) as shown on Figure 1. This effect was still
12 significant with age as a covariate⁷ ($F[1, 52]=22.50, p<.001, \eta^2=.30$).

13 As shown in Figure 1, AC students took more time to solve the task in the threatening
14 condition ($M_{second}= 231.40; SD = 37.97$) than in the non-threatening condition
15 ($M_{second}=159.60; SD = 20.96; F[1, 52]=68.30, p<.001$). RC students were a little slower in the
16 threatening condition ($M_{second}=196.30; SD = 11.93$) than in the non-threatening one ($M_{second} =$
17 $179.30; SD = 8.99$), but this difference was not significant ($F[1, 52]=2.63, p=.11$). In addition,
18 whereas AC students took more time to solve the task than RC students in the threatening
19 condition ($F[1, 52]=20.41, p<.001$), the reverse was true in the non-threatening condition in
20 which AC students took a little bit less time to solve the task than RC students ($F[1, 52]=4.83,$
21 $p<.04$).

22 **Figure 1** Study 2: Effect of condition and type of class on performance

23

⁷ Performance, even in this type of task can be linked with age. To avoid its effect, age was entered as a covariate.



1

2 Discussion

3 The aim of this study was to test for stereotype threat effects on the performance of
 4 children from AC. As shown in Study 1, those students are victims of a bad reputation
 5 concerning their academic abilities, even if this group membership is temporary. As a salient
 6 group associated with a bad reputation, we hypothesized that they should be vulnerable to
 7 stereotype threat. This is what we found. When asked to do a memory task in an evaluative
 8 setting (presented as a measure of their intellectual abilities), AC students took more time to
 9 resolve it than when the memory game was presented in a non-evaluative way, as a game.

10 This result is consistent with past literature on stereotype threat with children (Désert
 11 et al., 2009; Muzzatti & Agnoli, 2007; Neuville & Croizet, 2007), and adds to this literature
 12 another proof of the impact of a bad reputation on performance. Another alternative
 13 explanation, however, might be that AC children performed poorly simply because, as low
 14 achievers, they expected to fail. Indeed, the evaluative setting might have triggered specific
 15 expectations about future performance, based on their lack of past success and on their lower
 16 self-perceptions (Wigfield & Eccles, 2000). Because names were not reported between Study

1 1 and 2, we cannot test for this explanation. So, Study 3 aimed at replicating results of Study
2 2 and test for the impact of initial self-perceptions on performance of students under
3 stereotype threat. It aimed also at testing if stereotype threat impacted post-task self-
4 perceptions.

5 **Study 3**

6 To test for this alternative explanation, we run Study 3 in two distinct phases, each
7 separated by 15 days with a first phase during which we assessed self-perceptions of RC
8 students and AC (self-perceptions at Time 1) and a second phase during which we asked them
9 to take a test versus play a game and then assessed again self-perceptions (Time 2). As in
10 Study 1, we hypothesized that self-perceptions of AC students (at Time 1) would be lower
11 than those of RC students (Hypothesis 1). We also predicted that AC students would need
12 more time to complete the task when it is presented as a test (threatening condition) than
13 when it is presented as a game (non-threatening condition), while performance of RC students
14 would not differ depending on how the task is presented (Hypothesis 2). We also predicted
15 that AC students would perceive themselves after the task less positively in the threatening
16 condition than in the non-threatening one (Steele, 1997). Self-perceptions of RC students
17 should not differ across conditions (Hypothesis 3). We also predicted that those effects of
18 stereotype threat on performance and post self-perceptions should appear over and above the
19 effect of initial self-perceptions.

20 ***Participants and procedure***

21 Participants of Phase 1 were 105 elementary school students (53 girls, 52 boys, aged
22 7-10⁸) from a school in a low socio-economic area of the town. Their mean age was 8.16
23 years ($SD=0.92$). Among them, 67 were from a RC (37 girls; $M_{age}=8.13$, $SD=0.95$) and 38
24 from an AC (16 girls, $M_{age}=8.21$, $SD=0.87$). Among them, 42 were 2nd grade ($M_{age}=7.36$,

⁸ As in Study 1, 4 children were excluded from that sample because of their age. One was 6 years old, 3 were 11.

1 $SD=0.53$), 43 from 3rd grade ($M_{age}=8.44$, $SD=0.67$) and 20 from 4th grade ($M_{age}=9.25$,
2 $SD=0.44$).

3 Eighty eight students from Phase 1 (45 girls; aged 7-10; $M_{age}=8.17$, $SD=0.96$)
4 participated to the experiment 15 days after and were assigned either to the threatening
5 condition (N=43) or to the non-threatening condition (N=45). Among them, 54 were from a
6 RC (30 girls; $M_{age}=8.15$, $SD=1$) and 34 from an AC (15 girls; $M_{age}=8.21$, $SD=0.91$).

7 During Phase 1, as in Study 1, self-perceptions were assessed by the teacher during
8 school time; names, age and class were reported⁹. During Phase 2 which took place 15 days
9 after Phase 1, the experimenter came to the classes and, as in Study 2, took the children in an
10 adjacent room to ask them to take a memory task presented either as a game (non-threatening
11 condition) or as a test of abilities (threatening condition)¹⁰. After the task, the experimenter
12 asked children to complete the same self-perception measures as in Phase 1.

13 **Measures**

14 **Self-perceptions.** Self-perceptions (at Times 1 and 2) were assessed in the same way
15 as in Study 1 but only with the 5 items of the academic subscale of the Pictorial Scale of
16 Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984)
17 1984) to capture perceptions linked to the academic domain. Alphas were .61 at Time 1
18 (collective) and .74 at Time 2 (individual).

19 **Performance.** Performance was assessed via the time students took to completely
20 perform the memory task (in seconds). Additionally, the experimenter wrote children's name,
21 class (RC or AC), sex and age.

22 **Results**

⁹ Names were collected in order to match students' self-perceptions with performance. They were deleted afterward from the database.

¹⁰ Only children who had their parental authorization filled and were present during Phase 1 participated to the experiment.

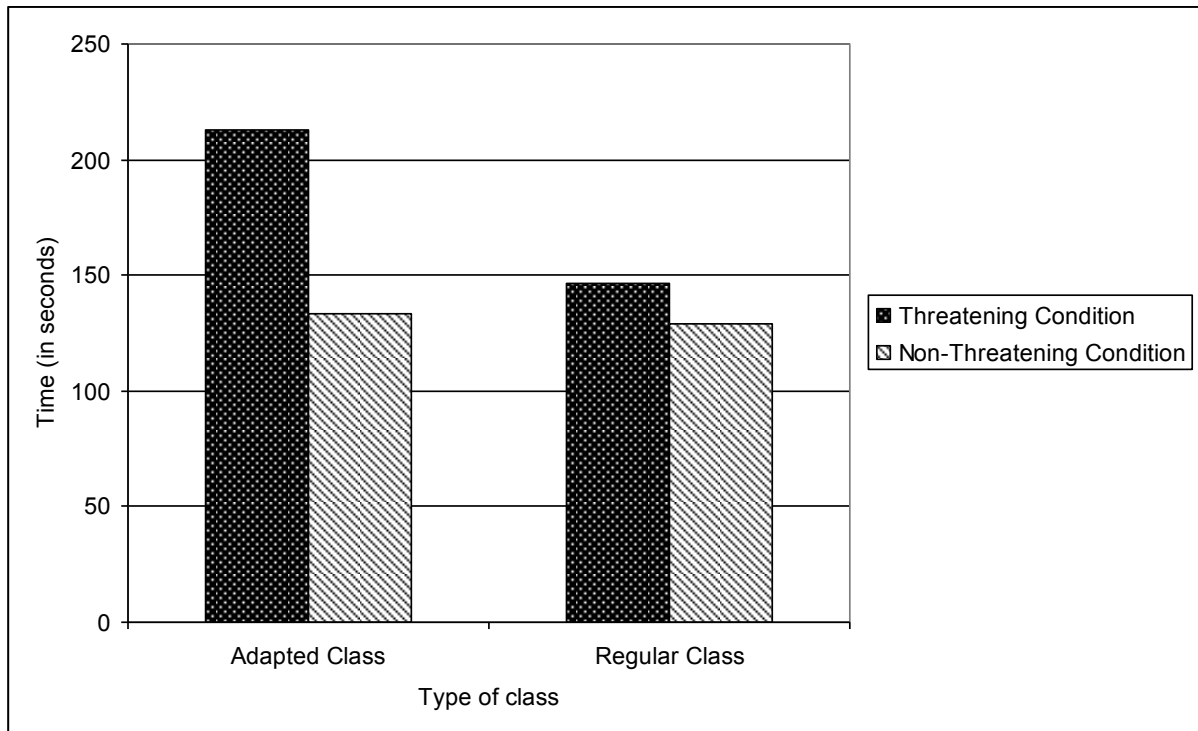
1 To test for hypothesis 1, we compared RC students' self-perceptions with those of AC
2 students (at Time 1), while controlling for students' age. Results showed that RC students
3 reported higher self-perceptions students ($M=3.58$, $SD=.38$) than did AC students ($M=2.88$,
4 $SD=.51$, $F[1, 102]=63.26$, $p<.001$, $\eta^2=.38$).

5 To test for hypothesis 2, we run an Ancova with the type of class (Regular vs
6 Adapted) and condition (Game vs Test) as independent variables, Time as a dependent
7 variable and age as a covariate. Results showed a significant effect of condition ($F[1$,
8 $83]=69.61$, $p<.001$, $\eta^2=.46$). Students were faster when the task was presented as a game
9 ($M_{second}=130.1$; $SD=26.05$) than when it was presented as a test ($M_{second}=177.7$; $SD=40.79$.
10 Results also showed a significant effect of the type of class ($F[1, 83]=38.98$, $p<.001$, $\eta^2=.32$).
11 RC students were faster ($M_{second}=136.5$; $SD=27.10$) than AC students ($M_{second}=180.1$;
12 $SD=46.37$). More importantly, there was a significant interaction effect between the type of
13 class and condition ($F[1, 83]=28.45$, $p<.001$, $\eta^2=.26$). As shown in Figure 2, AC students took
14 more time to solve the task in the threatening condition ($M_{second}=212.65$; $SD=30.18$) than in
15 the non-threatening condition ($M_{second}=133.50$; $SD=12.62$; $F[1, 83]=79.44$, $p<.001$). This
16 was also the case, although in a lesser extent, of RC students (respectively for the threatening
17 and the non-threatening conditions, $M_{second}=147.22$; $SD=17.54$ and $M_{second}=128.55$; $SD=$
18 30.30 ; $F[1, 83]=5.90$, $p<.02$). In addition, whereas AC students took more time to solve the
19 task than RC students in the threatening condition ($F[1, 83]=69.69$, $p<.001$), time was
20 equivalent between AC and RC students in the non-threatening condition ($F<1$).

21 Finally, results showed that this interaction was still significant after initial self-
22 perceptions were entered as a covariate ($F[1, 82]=28.29$, $p<.001$, $\eta^2=.26$).

23

24 **Figure 2** Study 3: Effects of condition and type of class on performance



2

3 To test for hypothesis 3, we ran again a mixed Anova with the type of class (Regular
 4 vs Adapted) and condition (Game vs Test) as independent variables, self-perceptions at Time
 5 1 and 2 as the dependent variables. Results showed a significant effect of Time ($F[1,$
 6 $84]=56.10, p<.001, \eta^2=.40$). Self-perceptions of students were lower at Time 2 ($M=3.06;$
 7 $SD=0.65$) than at Time 1 ($M=3.35; SD=.49$). Results also showed a significant interaction
 8 between Time and the Type of Class ($F[1, 84]=8.48, p<.01, \eta^2=.09$). If self-perceptions of AC
 9 students at Time 1 ($M=2.95; SD=0.39$) were lower than those of RC students ($M= 3.60; SD =$
 10 $0.37; F[1, 84]=13.64, p<.001$), this difference between AC ($M=2.44; SD=0.46$) and RC
 11 students ($M=3.44; SD=0.47$) was larger at Time 2 ($F[1, 84]=43.92, p<.001$). Additionally,
 12 results showed a significant interaction between Time and Condition ($F[1, 84]=52.48, p<.001,$
 13 $\eta^2=.39$). While self-perceptions of students did not change according to Condition at Time 1
 14 ($F<1$), they were at Time 2 lower in the threatening condition ($M=2.66; SD=0.55$) than in the
 15 non-threatening one ($M=3.44; SD=0.47$). Finally, the interaction between Time, Type of
 16 Class and Condition was not significant suggesting that the decrease in students self-

1 perceptions at Time 2 was mostly due to the evaluative component of the threatening
2 condition and not to stereotype threat effects.

3 **Discussion**

4 The aim of this study was to replicate results of Study 2 and also to disentangle
5 stereotype threat effects from an alternative explanation in terms of motivational
6 expectancies. The effects of stereotype threat on performance were replicated, and were still
7 visible after initial self-perceptions were kept constant, suggesting again the power of
8 stereotype threat and ruling out an explanation in terms of expectancy effects. Note that if
9 predicted by the literature, the effect of self-perceptions or self-esteem on performance when
10 under stereotype threat had rarely been tested. The only study we are aware of did not show
11 any impact of self-esteem on performance when under threat. However, as the authors
12 assessed self-esteem just before the manipulation, self-esteem might have served as a buffer
13 and reduced the impact of threat (Rydell & Boucher, 2010). This is not the case in our study
14 that assessed initial self-perceptions 15 days before. No relation could have been made
15 between the two evaluations.

16 Finally, our results showed an impact of stereotype threat on post-task self-
17 perceptions, but this effect, even if a little bit higher for AC students, also appeared for RC
18 students suggesting an effect due to the immediate evaluative situation. Also, our results
19 showed that the effect disappeared when initial self-perceptions were kept constant. Initial
20 self-perceptions explained post-task self-perceptions.

21 **General Discussion**

22 The aims of the present studies were to investigate if a bad reputation was associated
23 to students attending AC, if this bad reputation was known by those students and if it was
24 somewhat internalized (Study 1). It was also to investigate the impact of stereotype threat on
25 performance (Studies 2 and 3) and post-task self-perceptions (Study 3) and to test which of

1 the threat induced by the situation or the expectancy effects due to initial self-perceptions
2 could explain the performance decrement. No studies to our knowledge explored the effect of
3 stereotype threat on performance and post-task self-perceptions while assessing initial self-
4 perceptions.

5 Our results were broadly consistent with past research. Even such small and
6 circumscribed groups as are the AC can be rapidly associated with a bad reputation. This
7 appeared as young as 7 years old, that is for students who have never entered those programs
8 before and who have just entered a new school (pre-schools and elementary schools are often
9 different schools or are at least physically separated in France). RC students identified AC
10 students easily and already seemed to have a specific perception of them. Moreover, those
11 beliefs seemed to be widely shared as victims of this bad reputation were aware of them.

12 Our results also showed that AC students had lower self-perceptions than those of RC
13 students. Does this mean that AC students have already internalized the bad reputation of
14 their group? Our data cannot definitely answer this question. Indeed, even if the AC program
15 is probably new for students, they entered it because of their learning difficulties in some
16 academic subjects. It is thus likely that these students already have a history of low
17 achievement, even if this history is a short one (for a review, see Monteil & Huguet, 2001),
18 which impacted their self-perceptions. More research is needed to disentangle the impact of
19 academic history from the effects of membership to such a group on self-perceptions.

20 Until then, being part of an adapted class is not without consequences. Indeed, our
21 results showed that belonging to those AC impacted students' performance on a task
22 presented as assessing their intellectual abilities. When it was presented as a game, no
23 performance differences emerged, what is classically found in the literature on stereotype
24 threat. Therefore, the problem is not so much students' abilities level, but rather the way the
25 task is presented. Given that evaluations are more and more explicit as students go from pre-

1 school to elementary school, such a phenomenon is likely to be repeated over time. However
2 and hopefully, the impact of stereotype threat was not explained by initial self-perceptions.
3 This means that if a past history of underachievement and/or membership to an adapted class
4 can negatively impact self-perceptions, they do not seem to reinforce the effects of stereotype
5 threat.

6 However, initial self-perceptions seemed to reinforce the impact of an evaluative
7 situation on post-task self-perceptions as the self-perceptions of AC students lowered more
8 than that of RC students. Evaluative situations, even if regularly used to assess progress, may
9 be stressful for young children, especially if they occur outside their regular context. Further
10 studies are needed to explore more fully the respective impact of initial self-conceptions of
11 abilities and situational cues on subsequent self-perceptions.

12 The present studies contributed to the literature on stereotype threat, enlarging it to
13 another group and to another stereotype, as suggested by the knowledge all children have of
14 the bad reputation associated with being part of an adapted class. They also showed that even
15 a short term group membership can have deleterious effects (Martiny et al., 2012) and that
16 initial self-perceptions do not explain the impact of stereotype threat on performance.
17 However, those studies are not without limitations. The first one is the lack of measure of
18 initial meta-perceptions before a stereotype threat induction (Study 3). Moreover, a better
19 measure is needed to assess perceptions and stereotypes. Our choice was motivated by very
20 practical reasons. The first was to use the same measures for all children. If a pictorial
21 measure may be quite adapted for 7 or 8 years old children, it may appear quite childish for
22 older children. The second was to avoid any link between measures captured at Phase 1 and
23 the experiment conducted at Phase 2. We chose to ask students to complete self-perception
24 measures during class and ask an experimenter to run the experiment. This had the
25 disadvantage to imply a collective session not favourable to validity concerns.

1 In conclusion, our three studies showed again the power of stereotype threat. However
2 it raised other questions, in particular about the impact of the AC on self-perceptions of
3 students and also about the extent to which stereotype threat can impact subsequent self-
4 perceptions. Longitudinal studies would be much more appropriate, with measures of self-
5 perceptions taken at the beginning of the school year and a follow-up of children during the
6 year.

7

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