The big-fish–little-pond effect on academic self-concept: The moderating role of differentiated instruction and individual achievement

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Abstract

The big-fish–little-pond effect (BFLPE) postulates that class-average achievement has a negative effect on students' academic self-concept. We hypothesized that teachers' use of differentiated instruction strategies would attenuate the BFLPE on French self-concept (FSC). We also explored whether this moderation effect depended on children's individual achievement (i.e., a three-way interaction among class-average achievement, individual achievement, and differentiated instruction). Using hierarchical linear modeling, we tested this moderation effect in a sample of 422 elementary students nested in 27 classrooms. The results showed that the three-way interaction was significant. Simple slopes indicated a significant BFLPE only for students with low individual achievement and for whom teachers reported less frequent use of differentiated instruction strategies. Our findings provide insights into which students may be the most affected by the BFLPE and which teaching practices can attenuate its negative consequences on students' FSC. We discuss results in relation to the literature on the BFLPE and on differentiated instruction.

Students often compare themselves to other students to find out how well they perform in various school subjects (Buunk, Kuyper, & van Der Zee, 2005). Marsh (1984, 1987) and Marsh & Parker (1984) propose the big-fish–little-pond effect (BFLPE) to capture social comparison effects in schools. According to the BFLPE, students compare their individual achievement with the average achievement of their peers in the same school or classroom to develop their academic self-concept (ASC). Thus, school-average or class-average achievement serves as a reference standard. The BFLPE proposes that students who attend schools or classes with less-able peers should make more favorable comparisons and develop a more positive ASC than their equally able peers educated in high-ability schools or classrooms (Marsh, 1984, 1987; Marsh & Parker, 1984). Because ASC has been associated with educational benefits, such as school persistence and achievement (Guay, Larose, & Boivin, 2004; Guay, Marsh, & Boivin, 2003; Guay, Ratelle, Roy, & Litalien, 2010; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005; Marsh & Yeung, 1997), it is important to assess whether some characteristics of the school environment can attenuate the BFLPE. In this study, we investigated a pedagogical teaching practice that could attenuate the BFLPE on ASC, namely differentiated instruction.

This research contributes to the existing knowledge in two ways. First, although recent research has studied students' individual characteristics (e.g., motivation, behavior, social adjustment) that might moderate the negative effect of school-average achievement on ASC (Seaton, Marsh, & Craven, 2010), few studies have assessed characteristics of the school environment. Yet, identifying school moderators would provide insights into teaching practices that may attenuate

the BFLPE. Second, most researchers have conducted studies among adolescents with limited attempts to test this effect among younger students (see Marsh et al., 2008). Thus, we do not know whether elementary school children may use their classmates' achievement to develop their ASC. Below, we present the BFLPE and related research, a rationale for why differentiated instruction strategies should moderate the BFLPE, and evidence supporting the BFLPE.

1. Big-fish-little-pond effect (BFLPE)

ASC refers to students' self-perceptions of their abilities developed through experience and interpretations of the school environment (Marsh & Craven, 1997; Shavelson, Hubner, & Stanton, 1976). ASC is domain-specific, because students may have different views of their abilities in different school subjects (Arens, Yeung, Craven, & Hasselhorn, 2011; Marsh, 1986; Marsh, Byrne, & Shavelson, 1988). In this study, we selected French because students spend a lot of time studying this subject in the French–Canadian educational system (Formation Program of the Quebec School, 2006). Moreover, this subject has been the focus of inquiry in previous BFLPE studies (Huguet et al., 2009).

The BFLPE is rooted in students' perceptions of their abilities compared to those of their classmates (Huguet et al., 2009). According to this model, ASC should be predicted positively by individual achievement (students have higher self-perceptions when their own performance is high), but negatively by class-average achievement (students have lower self-perceptions when their peers' average performance is higher than their own).

Many studies have supported the BFLPE (see Marsh & Hau, 2003). For example, in a longitudinal study, Marsh, Trautwein, Lüdtke, and Baumert (2007) showed that the BFLPE was obvious among adolescents from selective high schools and that its effect persisted for years after graduation. Their results also showed the BFLPE at different levels of individual achievement for boys as well as girls. Moreover, Marsh and Hau (2003) tested BFLPE predictions for nationally representative samples of adolescents attending academically selective schools from 26 countries. The effect of class-average achievement on ASC was consistently negative, suggesting that the BFLPE is generalizable across cultures. The cross-cultural generalizability of the BFLPE was further supported in a recent study by Seaton, Marsh, and Craven (2009), who found a consistent negative effect of class-average achievement on ASC in students attending high-achievement schools from 41 culturally and economically diverse countries.

2. Moderators of the BFLPE

Until recently, the question as to whether the BFLPE varies across diverse student characteristics or educational settings had received little attention. The most widely studied moderator is individual achievement. However, the findings have been inconsistent (Seaton et al., 2010). For example, some studies found a negative BFLPE for high achievers in high-achievement schools (Seaton et al., 2009), while others indicated that students of average ability were the most affected (Marsh & Rowe, 1996). In addition, the majority of studies found non-significant interaction effects, suggesting that the BFLPE was generalized at different individual achievement levels (Marsh & Hau, 2003; Marsh et al., 2007).

The first systematic attempt to address the issue of BFLPE moderation was by Seaton et al. (2010), who evaluated BFLPE generalizability across a variety of individual characteristics (e.g., socioeconomic status, intrinsic and extrinsic motivation, and individual achievement). Although many moderating effects were too small to be relevant, others were far-reaching. More precisely, the results suggested that the BFLPE was more pronounced for students who were intelligent, were anxious, used memorization as a learning strategy, and had a cooperative orientation. These results provide important insights into which students may be the most affected by the BFLPE.

Seaton et al. (2010) examined individual differences that could affect the size of the BFLPE. However, few studies have explored such variables as teachers' pedagogical practices. Marsh and Craven (2002) proposed some classroom strategies (e.g., provide individualized feedback and focus on improvement) to reduce the BFLPE, but they did not test their assumptions. Meanwhile, Lüdtke, Köller, Marsh, and Trautwein (2005) examined the influence of teachers' reference frames on the BFLPE. They hypothesized that the negative effect of class-average achievement on students' ASC would be smaller for teachers who used an individual reference standard (i.e., focus on improvement, effort, and learning) than those who used a social reference standard (i.e., focus on comparisons between students). The results revealed that when teachers used an individual reference standard, students had higher academic self-concept. Yet, this pedagogical practice did not moderate the negative effect of class-average achievement on ASC. The authors inferred that the BFLPE was robust in most school environments, as students naturally compare themselves with their peers. Nonetheless, further research is needed to explore other teaching strategies that may offset the BFLPE (Dai & Rinn, 2008). Therefore, the present study explores teachers' use of differentiated instruction strategies, which involve providing individualized feedback and varying teaching to match students' learning needs.

3. Differentiated instruction as a potential moderator of the BFLPE

The need to provide school environments that respond to individual differences has been a longstanding concern (Ainscow, Booth, & Dyson, 2006; Glaser, 1977; Thomas & Loxley, 2001; Wang, 1992). Now that regular classrooms have become even more diverse in terms of children's abilities, teachers are encouraged to carry out instructional practices that allow both advanced and weaker learners to succeed and develop their competencies (Corno, 2008). Researchers and practitioners recognize differentiated instruction as a promising practice. Differentiated instruction can be defined as an approach by which teaching is varied and adapted to match students' abilities using systematic procedures for academic progress monitoring and data-based decision making (Roy, Guay, & Valois, 2013). According to this definition, differentiated instruction has two distinct components: instructional adaptations and academic progress monitoring.

First, researchers have identified instructional adaptations as a key to academic success (Fuchs & Fuchs, 1998; Fuchs, Fuchs, & Bishop, 1992; McLeskey & Waldron, 2002). Through instructional adaptations, teachers can provide various learning choices to students (Randi & Corno, 2005; Scott, Vitale, & Masten, 1998). They develop judgments on children's abilities and adjust their instruction to promote optimal learning. Possible adaptation strategies include 1) altering the curriculum (e.g., change goals and expectations), 2) varying assignments and assessment methods (e.g., vary the complexity of tasks), and 3) providing alternative materials (e.g., use books below and above grade levels) to match students' abilities.

Second, teachers should carry out academic progress monitoring so that they can make appropriate decisions on teaching adjustments (Fuchs & Fuchs, 1993; Scott et al., 1998; Ysseldyke et al., 2003). The match between instructional practices and students' capacities must be based on students' level of competence and the task to be performed (Randi & Corno, 2005; Wang & Lindvall, 1984). Academic progress monitoring procedures include: analyzing data on students' improvement rates, using students' data to decide on teaching adjustments, and evaluating the effectiveness of teaching adjustments by monitoring students' subsequent progress and achievement (Roy et al., 2013).

We expected the use of instructional adaptations to attenuate the negative effect of class-average achievement on ASC. As mentioned above, through instructional adaptations, teachers provide students with materials below and above grade levels, vary the complexity of assignments, and adapt assessment methods to match abilities. Therefore, we assumed that students might pursue different individual goals or take different routes to achieve common goals, depending on their abilities. In this perspective, students are encouraged to develop self-assessments of their academic progress and accomplishments (internal reference frame) rather than using peer performance as a comparison (external reference frame). Like teachers' individual reference frames, instructional adaptations focus on individual achievement rather than competition and social comparison, and they should thus foster self-perceptions of ability. We thus hypothesized that the use of instructional adaptation strategies would lessen the negative effect of class-average achievement on ASC in French class.

As mentioned above, differentiated instruction also involves the use of academic progress monitoring. However, academic progress monitoring is not expected to be associated with academic self-concept or to moderate the BFLPE, because it does not target the students directly. Instead, the aim of academic progress monitoring is to support teaching while ensuring a more effective use of instructional adaptations.

4. Developmental effects on the BFLPE

Marsh (1989) proposed that young children's academic self-concepts are usually positive and not correlated with external indicators (e.g., accomplishments) but that, through academic experiences, children learn their relative strengths and weaknesses so various academic self-concepts (math, verbal) become more differentiated and more highly correlated with external indicators. In line with this developmental perspective, Marsh, Craven, and Debus (1998) showed that reliability, stability, and factor structure of self-concept scales improve with age (children 5–8 years old). In addition, consistent with the proposal of Marsh et al. (1998) that children's self-perceptions become more realistic with age, self-concept ratings correlated more with teacher ratings as the children grew older (Guay et al., 2003).

Based on previous developmental findings, we expected a weaker BFLPE in samples of elementary school children. In fact, results from Ruble, Boggiano, Feldman, and Loebl (1980) suggest that relative comparisons have little effect on children's self-concepts before 7 or 8 years of age. Some studies have thus tested the BFLPE with elementary school children over the age of 8. For example, Marsh, Chessor, Craven, and Roche (1995) showed that the BFLPE occurs in samples of children between 9 and 11 years old regardless of their sex, age, and initial ability. In a

recent study conducted in a nationally representative sample of 4th- and 8th-grade students from 13 different countries comprising 117,321 students from 6499 classes (TIMSS study), Marsh et al.(2014) demonstrated developmental and cross-cultural generalizability of the BFLPE on math self-concept. Based on these previous results and theory, we expected the BFLPE to be significant in this study comprising a sample of children between 8 and 11 years old. However, the BFLPE size could be smaller than in previous studies conducted among adolescents.

5. The present study

In this study, we verified whether the use of differentiated instruction moderates the BFLPE on French self-concept (FSC) in a sample of elementary school children attending mixed-ability classes. Consistent with past studies, we first predicted that students' individual achievement in French would positively predict FSC (Hypothesis 1). Second, we postulated that class-average achievement in French would negatively predict students' FSC (Hypothesis 2). Third, we hypothesized that the use of instructional adaptations (the first component of differentiated instruction) would positively predict FSC (Hypothesis 3). Fourth, we predicted that instructional adaptations would moderate the negative relation between French class-average achievement and FSC such that the BFLPE decreased when the teachers more frequently use instructional adaptation strategies (Hypothesis 4). We also explored whether the interaction between instructional adaptations and class-average achievement varies across individual achievement levels. The use of academic progress monitoring (the second component of differentiated instruction) was not expected to be associated with academic self-concept or to moderate the BFLPE, because it does not address the students directly. Finally, we controlled for gender and age differences among students in the statistical analyses because previous studies have observed that verbal self-concept declines with age and that girls have higher scores on verbal self-concept than boys (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Marsh et al., 1995; Marsh, Trautwein, Lüdtke,Köller,&Baumert,2006).

6. Method

6.1. Participants and procedure

Data from this study came from a larger study on school adjustment conducted among elementary school children and their teachers (Roy, 2014). Twenty-seven elementary school teachers (83.3% female) agreed to participate in the study, which took place in Quebec, a Canadian province where the official language is French. With their parents' approval, children from all classrooms were administered a French questionnaire during school hours in the period from January through March. Students needed about 30 min to complete the questionnaire. We also asked teachers to fill out a questionnaire to report their differentiated instruction strategies. This resulted in a final sample of 422 students (46.9%female; third grade = 72, fourth grade = 105, fifth grade = 174, sixth grade = 71) from 27 classrooms, with at least ten students from each classroom. The teachers' mean age was 40 (SD = 9.27) and their teaching experience ranged from 1 to 32 years (M =14.67, SD =8.97).

We collected the achievement variables after the French ASC and not before, as theoretically proposed by the BFLPE. In the Quebec educational system, each student receives four report cards per year. We used the final report card to take into account all French competencies evaluated by their teachers (reading, writing, oral communication). However, this slight mismatch between measurement times should not be a cause for concern (i.e., FSC collected before individual and class-average achievement). First, although we used the final report card, students received two out of four report cards by mid-February. Consequently, they had a good idea by then of how well they perform in French. Second, elementary school children's achievement is very stable over time. For example, Guay et al. (2003) have observed test–retest correlations of .69 based on responses from various teachers from one year to the next. We are thus confident that the final report card provided information similar to an achievement measure collected at the same time as FSC.

6.2. Measures

6.2.1. French self-concept

FSC was assessed with a shortened three-item scale adapted and translated from the Academic Self-Description Questionnaire I (ASDQI) developed by Marsh (1990, 1993). Items, rated on a three-point Likert scale (1 = not true, 2 = sort of true, 3 = very true), are the following: “I have always done well in French class,” “The work in French class is easy for me,” and “I learn things quickly in French class.” We aggregated all items to calculate a total score. Cronbach's alpha was .84. Guay et al. (2010) used these three items and provided support for their reliability as well as their convergent and divergent validity.

6.2.2. Academic achievement

Individual achievement and class-average achievement were drawn from students' final report cards. We computed a total score by aggregating children's marks for each skill area in French (e.g., reading and writing). Class-average achievement was based on the performance of all students in the classroom (including those who did not participate in the study; Lüdtke et al., 2008). Achievement scores ranged from 0 to 100%. Research has shown that marks given by elementary teachers correlate with those given by other teachers having taught the same students in a different school year, thereby providing some support for the reliability of this kind of measure (see Guay et al., 2003,fora test–retest correlation of .69).

One of the minimal conditions to test the BFLPE is an “objective measure of achievement for each individual student that is directly comparable over different schools” (Marsh et al., 2008, p. 324). Such a standardized measure offers the possibility of capturing a sufficient amount of variability among classes to detect the BFLPE. However, in Quebec's educational system, the marks given to students are not “norm-referenced.” Instead, teachers must evaluate the level attained by a student for a given standard of competency or ability. This criterion-referenced grading system may lead to a significant BFLPE because teachers will be less inclined to grade their students on a bell curve (Aviles, 2001; Martuza, 1977). In other words, although we are aware of the importance of a standardized measure, especially in educational systems where teachers are asked to use norm-referenced marks, this prerequisite may be less important in a system where teachers are asked to base their judgments on a criterion-referenced grading system. Moreover,

such a grading system produces enough variability in class-average achievement to test the BFLPE because it compares student achievement to instructor-chosen standards that are usually expressed in the form of descriptive cut-offs. The information on variance provided in Table 1 suggests that there was sufficient between-class variance and that the grades were derived by means other than grading on the bell curve, thus making it possible to examine the BFLPE and its possible moderators.

6.2.3. Differentiated instruction

Teachers' differentiated instruction strategies were reported using the Differentiated Instruction Scale (DIS), developed and validated by Roy et al. (2013). This instrument includes 12 items assessing the use of instructional adaptations (e.g., "I vary the complexity of assignments to match students' abilities," "I use alternative materials to match students' abilities") and academic progress monitoring (e.g., "I use students' data to make decisions on teaching adjustments," "I evaluate the effectiveness of teaching adjustments"). Items are rated on a five-point Likert scale (1 = never, 5 = very frequently). Cronbach's alpha for the two subscales was .86 (instructional adaptations, eight items) and .74 (academic progress monitoring, four items), respectively. The DIS factorial, convergent and divergent validities have been previously supported (Roy et al., 2013). There may be concerns over the use of a self-report questionnaire to measure differentiated instruction because self-report measures could lead to a high degree of response bias. However, in a review of the methods used for measuring teaching behaviors, Desimone (2009) concluded that: "…a careful look at the research shows that when teachers are reporting on concrete professional development and teaching behaviors and activities, observations and surveys can elicit much the same information" (p. 189).

6.3. Statistical analysis

Students are nested within classrooms. Because this hierarchical structure involves two levels of analysis, we used multilevel linear modeling (Raudenbush & Bryk, 2001). We tested our hypotheses using the Mixed procedure in SAS 9.2, which is suitable for fitting multilevel models (Singer, 1998; Tabachnick & Fidell, 2007). This procedure considers the dependence of scores among students from a same class-room by estimating the variability associated with class differences. We estimated 17 predictors of FSC. Along with the intercept, we estimated six main effects, six two-way interactions, and four three-way interactions. All variables were standardized (M = 0, SD = 1) to facilitate the interpretation of the multilevel regression coefficients. To interpret interaction effects, we rearranged the equation terms and calculated the slopes between the independent and dependent variables at three levels of the moderator variable, using standard deviations from the mean (low = −1 SD, moderate = 0, high = 1 SD; Aiken & West, 1991).

6.3.1. Missing values

In this study, we used a multiple imputation procedure (Rubin, 1987) to replace the missing values. Twenty-five multiple imputation data sets were generated and each missing value was replaced with an estimated value. Consequently, we performed our analyses on a total sample of 27 classrooms and 422 students.

7. Results

Table 1 shows correlations among the variables and Table 2 displays the multilevel regression results. Consistent with Hypothesis 1, individual student achievement in French was positively associated with FSC. Thus, students with higher grades in French had higher self-perceptions of their abilities in this subject. The model also provides support for the BFLPE (Hypothesis 2): the relation between class-average achievement in French and FSC is weak, but significant and negative. Therefore, students' self-perceptions of their abilities in French decreased as their classmates' average performance increased. Contrary to Hypothesis 3, the use of instructional adaptations was not positively associated with students' FSC. The two covariates (age, gender) were significant: girls had higher FSC scores than boys and older children had lower FSC scores than younger ones.

Contrary to Hypothesis 4, the interaction between instructional adaptation and class-average achievement was non-significant. However, we did find a significant cross-level interaction between individual achievement and class-average achievement in French. We also obtained a three-way interaction among individual achievement, class-average achievement, and instructional adaptations. Because the three-way interaction encapsulated the two-way one, only the three-way interaction was decomposed. Fig. 1 displays the results, which show that the BFLPE held only when differentiated instruction and individual achievement were low. Students with low individual achievement levels, but whose teachers self-reported higher levels of differentiated instruction, did not experience the BFLPE. We did not observe such a pattern when students' individual achievement was high. Taken as a whole, these results suggest that instructional adaptation might buffer the BFLPE for low-achieving students.

8. Discussion

The purpose of this study was to verify whether differentiated instruction moderates the BFLPE. We predicted that the use of instructional adaptation strategies would attenuate the negative effect of class-average achievement on FSC. In addition, we explored whether such attenuation is moderated by students' individual achievement (a three-way interaction). Consistent with our hypotheses, individual achievement positively predicted FSC (Hypothesis 1), whereas class-average achievement negatively predicted FSC (Hypothesis 2). Contrary to expectations, differentiated instruction did not significantly predict FSC (Hypothesis 3) and did not moderate class-average achievement (Hypothesis 4). However, the two-way interaction between differentiated instruction and class-average achievement (Hypothesis 4) was qualified by a three-way interaction also involving differentiated instruction and class-average achievement. This three-way interaction indicated that instructional adaptations reduce the BFLPE for low-achieving students. All the significant effects were obtained beyond gender and age effects.

This study supports the generalizability of the BFLPE for younger students between 8 and 12 years old. However, this effect was weaker compared to the one observed for older students (see Marsh & Hau, 2003). Considering that young children's self-concepts are positive and less correlated with external indicators (e.g., accomplishments; Marsh et al., 1998), this weaker BFLPE is not surprising. Indeed, Ruble et al. (1980) showed that relative comparisons do not affect children's self-concepts before 7 or 8 years of age. However, the effect obtained might have been

even smaller had we used the entire school as a reference frame. Indeed, using class-average achievement instead of school-average achievement could have led to a stronger BFLPE (Alicke, Zell, & Bloom, 2010; Huguet et al., 2009).

Our results support the BFLPE in a population of students attending mixed-ability classes. However, this effect was attenuated when teachers used instructional adaptations, and for students with low individual achievement scores. Therefore, varying goals, materials, assignments, and support to match different learning needs can lessen the negative effect of class-average achievement on FSC for low-achieving students. This finding has theoretical and practical implications.

Theoretically, we link the literature on differentiated instruction and the BFLPE, which appears to be a promising approach. To our knowledge, this study is the first to provide evidence that some educational environments can attenuate the negative outcomes of the BFLPE. In contrast, Lüdtke et al. (2005) found that teachers' individualized reference frames did not moderate the negative effect of class-average achievement on students' self-perceptions. Their findings suggest that although they can contribute to improving students' self-perceptions, giving praise and positive feedback may not be enough to reduce social comparison and offset the BFLPE. Rather, our results suggest that adjusting instruction to promote optimal learning could be a prerequisite to reducing the BFLPE. When low-achieving students are allowed to choose different avenues to develop their competencies and achieve individual and common academic goals, they may be less likely to use their classmates' performance as a reference standard for self-assessment. Instead, instructional adaptation strategies could encourage students to rely on their own improvements and accomplishments to form their French self-concept, thus lessening the BFLPE.

We also found that instructional adaptations were not positively associated with FSC. However, other constructs, such as intrinsic motivation or personal best goals, may mediate the relationship between differentiated instruction and academic self-concept (Martin & Liem, 2010). In fact, adjusting teaching to match individual learning needs allows students to follow ideal challenges suited to their capacities (Martin & Liem, 2010). According to Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000) and Flow Theory (Nakamura & Csikszentmihalyi, 2002; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003), intrinsic motivation will flourish if students are presented with proper challenges for their skills. Indeed, a study by Guay, Boggiano, and Vallerand (2001) suggests that intrinsic motivation predicts perceived competence in elementary school children. Therefore, instructional adaptation strategies may also improve intrinsic motivation, which in turn produces higher academic self-concept. However, this assumption remains speculative and would require further research. Lastly, our results point out that academic progress monitoring (the second component of differentiated instruction) does not predict academic self-concept or moderate the BFLPE, confirming our prediction.

Teachers should therefore use instructional adaptation strategies to reduce the negative outcomes of social comparison in French class and to improve low achieving students' academic self-concept. Some research has shown that because they lack time and resources, teachers use strategies that do not require much preparation or tailored instruction (Graham, Harris, Fink-Chorzempa, & MacArthur, 2003; Graham et al., 2008; Johnson & Pugach, 1990; Schumm & Vaughn, 1991). Therefore, to enable effective use of differentiated instruction, satisfactory preparation and support should be provided to teachers. Besides, well-designed academic progress

monitoring procedures would allow practitioners to make appropriate decisions on instructional adaptations for particular children or groups of children (Ysseldyke et al., 2003).

8.1. Limitations and directions for future research

Important strengths of our study include the fact that we conducted it with a sample of relatively young students attending mixed-ability classes. More importantly, we studied a variable, differentiated instruction that could moderate the effect of classroom-average ability on FSC for low-achieving students. Nevertheless, as is always the case, there are limitations that may provide the basis of further research.

First, teachers could have reported their pedagogical practices favorably. Consequently, our hypotheses could be tested more stringently with observational data on differentiated instruction. Second, standardized achievement test scores could provide a common metric for all students from various classrooms and could reduce potential bias in teachers' evaluations (Marsh et al., 2008). Third, the present findings should be reproduced using larger samples and longitudinal designs. Fourth, it could be useful to examine the moderating effect of differentiated instruction in other core academic subjects, such as mathematics. Fifth, the use of manifest variables is a limitation. Future studies should test these hypotheses in a latent variable framework.

9. Conclusion

The province of Quebec (Canada) recently carried out a large school reform aimed at lessening the emphasis on social comparison, by encouraging teaching approaches that focus on individual achievement and improvement (e.g., differentiated instruction strategies). The purpose was to decrease dropout rates and to foster academic achievement. Despite this effort, not all teachers embraced differentiated instruction (Roy et al., 2013). As we have already stated, instructional adaptation could be useful in reducing the effect of the BFLPE. These results have implications for education policy also. Mainstream classrooms would not be harmful for low-achieving students as long as their teachers differentiated their instruction. In addition, the combination of low differentiated instruction, low individual achievement, and high class-average achievement appears to form a “lethal cocktail” for students' FSC. However, this conclusion is limited to the present study. More research is needed to understand the moderating role of differentiated instruction and other pedagogical approaches in the BFLPE

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Table 1. Correlations among French self-concept, individual achievement, class-average achievement, and differentiated instruction

							Range	
		1	2	3	4	5	Potential	Actual
1.	French self-concept	__					1–3	1–3
2.	Individual achievement	.49**	__				0–100	49–94
3.	Class-average achievement	.17**	.48	__			0–100	69–87
4.	Instructional adaptations	.01	.02	.08	__		1–5	1.63–4.25
5.	Academic progress monitoring	.02	.02	.00	.44**	__	1–5	2.25–4.50
M		2.15	78.82	78.14	3.00	3.38		
SD		.60	8.43	4.06	.63	.61		

Note: ** = p < .01, * = p < .05.

Table 2. Multilevel analyses: Regression coefficients relating French self-concept to individual achievement, class-average achievement, differentiated instruction, and academic progress monitoring

		β	SE	t
1.	Intercept	.26	.14	1.81
2.	Sex	-.20	.09	-2.40*
3.	Age	-.15	.05	-2.91*
4.	Individual achievement (IAch)	.56	.06	9.59**
5.	Class-average achievement (CAA)	-.14	.06	-2.44*
6.	Instructional adaptations (IA)	.09	.06	1.47
7.	Academic progress monitoring (APM)	-.06	.06	-.97
8.	IAch x CAA	.10	.05	2.28*
9.	IAch x IA	-.07	.06	-1.13
10.	IAch x APM	.04	.06	.69
11.	CAA x IA	.11	.07	1.56
12.	CAA x APM	-.04	.07	-.52
13.	IA x APM	.03	.06	.52
14.	IAch x CAA x IA	-.11	.05	-2.10*
15.	IAch x CAA x APM	.03	.05	.57
16.	IAch x IA x APM	-.06	.05	-1.17
17.	CAA x IA x APM	.02	.12	.21

Note: ** = p < .01, * = p < .05.

Figure 1. Simple Slopes for the Three-Way Interaction Among Individual Achievement, Class-Average Achievement, and Instructional Adaptations. IA = Instructional Adaptations; IAch = Individual Achievement.