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Students' transition from elementary to high school and changes of the relationship between motivation and academic performance

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336 students, 186 girls and 150 boys were met at the end of the school year, both at grade six and at Secondary one, in order to examine the impact of the transition from elementary to secondary school on various motivational variables. Analyses showed changes in self-efficacy beliefs and learning goals, whatever students' level of achievement and gender. However, self-efficacy beliefs appeared as the most powerful predictor of academic performance at both school levels. In addition, the pattern of relations between academic performance and the variables examined was relatively similar at both times of measurement. The discussion focuses on changes in self-efficacy beliefs and learning goals and on their relations to academic performance.

Introduction

The general focus of the present study is to examine the impact of the transition from elementary to secondary school on particular aspects of students' motivational profile and the links existing between these variables and academic performance.

An extensive literature in cognitive and educational psychology highlights the crucial role of motivation in students' use of their cognitive resources, quality of learning experiences and academic performance (Bandura, 1986; Bouffard-Bouchard & Pinard, 1988; Bouffard & Vezeau, 1998; Deci & Ryan, 1992; Dweck, 1989, 1990; Gottfried, 1990; Harter, 1981, 1990, 1992; Marsh, Craven, & Debus 1991; McCombs, 1988). Student competencies and strategic capabilities facilitate the learning process. These cognitive resources, however, are but of little help if students are beset by self-doubts about their competencies or motivation. In fact, student motivational resources act concurrently as agentic motivators and behavioural regulators for the successful attainment of goals (Bouffard, 1998; Bouffard & Bordeleau, 1997; Eccles, Wigfield, & Schifele, 1998; McCombs, 1989; McCombs & Marzano, 1990; Palmer & Goetz, 1988).

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Student motivational resources have been examined in reference to a number of constructs, such as: self-concept, self-esteem, intrinsic motivation, activity assessment, attributions of success and failure, self-efficacy, expectancies for success[1], learning goals, etc. The research has recognized the relative pertinence of these variables, and has found the closer and more specific a variable is to the tested scholastic subject, the higher its predictive value (Bandura, 1997). Therefore, student self-efficacy beliefs and learning goals are considered as crucial factors in the quality of their academic performance.

As conceptualized by Bandura (1977, 1986), self-efficacy beliefs refer to people's perception of their capacities to organize and execute activities in order to achieve a given cognitive task. Self-efficacy is not an exact representation of peoples' true competencies, but rather an interpretation of their competencies biased by the value and reasons attributed to past performances in similar situations. A high perception of one's efficacy leads to a greater self-actualization and a higher interest in a given subject, more satisfaction in having met the challenges and in the long run, strong performance accomplishments. A great number of studies have demonstrated the relations between self-efficacy beliefs, self-regulation (i.e. cognitive mechanisms for the application and regulation of strategies by students in the performance of tasks) and the achievement of cognitive and scholastic tasks (Bandura, 1986; Berry & West, 1993; Borkowski, Carr, Rellinger, & Pressley, 1990; Bouffard-Bouchard, 1990, 1992; Bouffard-Bouchard & Pinard, 1988; Bouffard-Bouchard, Parent, & Larivée, 1991; McCombs, 1989; Multon, Brown, & Lent, 1991; Schunk, 1982; Zimmerman, 1986, 1993; Zimmerman & Martinez-Pons, 1990; Zimmerman, Bandura, & Martinez-Pons, 1992).

Learning goals essentially concern the various reasons that motivate a student to enter into a particular educational activity (Dweck, 1986). They can be divided into three main categories: mastery, performance and avoidance goals. Mastery goals emphasize the development of skills and their mastery. Attention is focused on increasing one's abilities, while valuing the efforts needed to achieve them. Setbacks and failures are considered as a normal part of the learning process, and for students pursuing such goals, in spite of the short-term risks involved, the tasks they most prize are those with a sufficiently high level of difficulty enabling them to acquire knowledge. Performance goals emphasize the demonstration of competence through the achievement of high grades and superiority over peers. Student focus on this goal is mainly to show off competence that will be more manifest as the task will be accomplished with little effort. Students with this learning goal perceive setbacks and failures negatively because they are considered as obvious signs of incompetence. Even though they are not likely to learn as much, students with this goal will prefer those relatively easy tasks, which entail little or no risk of error and high probability of success attainment. Finally, avoidance goals emphasize the minimum requirements needed to pass and the limitation of efforts to do so. With such a goal in mind, students are neither concerned with improving nor demonstrating their competencies, but only with avoiding failure. Various studies dealing with the relationship between learning goals and academic performance of students from different school levels have come to the conclusion that those students with mastery goals are more involved in effective self-regulation activities in their studies and succeed more often than students with performance goals (Ames & Archer, 1988; Bandura, 1986; Dweck, 1986; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Meece, Blumenfeld, & Hoyle, 1988; Nicholls, 1984; Nolen & Haladyna, 1990; Pintrich & Garcia, 1991).

According to social cognitive theory (Bandura, 1986; Dweck, 1986; Dweck & Legget, 1988; Eccles et al., 1998; Pintrich & Garcia, 1991), the motivational processes that support the use of cognitive and self-regulatory processes are based on student's self-efficacy beliefs and learning goals. A more or less active and self-regulated use of cognitive and self-regulatory processes influences performance, which in turn affects self-efficacy beliefs (invalidating or confirming them) and learning goals (Boileau, Bouffard, & Vezeau, 2000; Bordeleau & Bouffard, 1999; Bouffard, 1998; Bouffard & Vezeau, 1998; Midgley, Arunkumar, & Urdan, 1996; van Damme & Mertens, 2000; Wigfield, Eccles, Suk Yoon, Harold, Arbreton, Freedman-Doan, & Blumenfeld, 1997). However, this bidirectional mechanism can be interrupted, and according to some, the changes in the physical and social environment

associated with the transition phases that mark a students' academic career can lead them to call into question their values and goals (see Eccles, Midgley, & Adler, 1984, and Stipek & Mac Iver, 1989, for a survey of related literature). Consequently, the transition from elementary to secondary school is often considered as a particularly significant event (Anderman & Maehr, 1994; Anderman & Midgley, 1997; Blyth, Simmons, & Carlton-Ford, 1983; Eccles et al., 1984; Maehr & Anderman, 1993; Midgley, 1993; Midgley, Anderman, & Hicks, 1995; Watt, 1998; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). The authors posit various reasons to explain this critical transition. For instance, secondary school would represent an environment where skills and performance are valued above learning goals. The evaluation criteria and practices are seen as less flexible, thus making it more difficult for the student to maintain the same level of achievement. Moreover, the importance placed on grades would be reinforced and emphasized through public distinctions and social rank. All this at a time when peers play a particularly important role in students' lives, and in an environment that has become more impersonal due to the increased number of individuals, as well as to the practices that help create a competitive atmosphere, which is less suitable for interpersonal relations. According to Eccles et al. (1998), these environmental aspects would undermine positive school attitudes, self-efficacy beliefs, and the pursuit of suitable learning goals.

This hypothesis of students' declining efficacy perceptions and goal types has been addressed in various empirical studies. According to Eccles et al. (1998), even though the changes are not dramatic for most young people, a large majority of studies shows that the transition from elementary to secondary school impacts negatively on various dimensions of students' motivational system, as seen in the negative attitudes towards school and learning (higher anxiety, depreciation of school, etc.), and lowered confidence in their competencies and in motivation in general. Certain studies however suggest that the phenomenon is less generalized, and that individual variables such as the student's gender, academic performance in elementary school or level of ability in the tested subject matter could modulate the impact on the transition to secondary school.

The studies by Wigfield et al. (1991), and Anderman and Midgley (1997) come to the conclusion that reduced self-efficacy beliefs are especially noted in students with considerable skills or high grades in elementary school, whereas students in the weaker category do not show any change. Whereas Wigfield et al. (1991) conclude that girls and boys undergo similar changes, a more recent study by Anderman and Midgley (1997) suggests that the pattern of reactions could vary depending on students' gender. The authors report that in the weaker group, the academic performance of girls has diminished considerably, but remained unchanged for boys, whereas in students from the higher group, girls' performance improved and boys' fell. In a study on students who were met at the beginning and end of their first year in secondary school, Watt (1998) also reports that changes in students' self-efficacy beliefs vary depending on their level of skills. However, contrary to the two previous studies, students ranked in the lower group have shown diminished self-efficacy beliefs, while students in the average and high groups do not experience any such changes. Also, while boys report a reduction in their expectations of success, girls' expectations remain unchanged. Finally, the study by Chung, Elias, and Schneider (1998) reports a substantial reduction in achievement levels for boys and a constancy of results for girls.

Globally, the studies on the impact of the transition from elementary to secondary school that take into account certain individual aspects as previous achievement, students' skills level or gender, are not only few in number, but also discrepant in their conclusions. Furthermore, as in most other studies in the field, they do not examine if potential changes in the selected variables also affect their interrelationships and are linked to students' achievements. In fact, beyond verifying the potential deterioration in students' perceptions of their self-efficacy beliefs and learning goals, at issue here is the equally important question of understanding whether this deterioration changes in the weight of these variables in terms of academic achievement.

All three objectives of this two-year longitudinal study, starting with students in grade six of elementary school are examined according to students' gender. The first objective is to

examine the changes in their self-efficacy beliefs in French, their self-efficacy beliefs in the use of subject-related learning strategies, and in their learning goals, after their transition from elementary to secondary school according to their achievement levels in grade six. French was chosen as the subject matter because it is one of the two prerequisite subjects needed to advance to secondary school. The second objective is to examine the evolution of the pattern of relations between these variables, and the third objective is to compare, at both school levels, the relationships of the variables with students' academic achievement. Given the lack of consensus that has arisen from the studies dealing with the first two objectives, no precise hypothesis can be formulated and the investigations are undertaken in an exploratory manner. However, based on the abundant literature that has demonstrated the positive impact of self-efficacy beliefs and mastery goals on academic achievement, and the less conducive impact of performance and avoidance goals, we hypothesized that at both school levels, the self-efficacy beliefs related to French and to the use of strategies, as well as the mastery goals, will impact positively on academic achievement, while performance and avoidance goals will have a negative effect.

Method

Participants

The sample included 336 French-speaking students, 186 girls and 150 boys (mean age at grade 6=11 ans 11 mois, e.t.=5.88 months). They were recruited from nine different public high schools in Montreal that served predominately the middle class. All students were enrolled in regular classes. Participants were selected upon their parents accepting that their child completes questionnaires and that the school direction provides us with the final marks their child obtained for his/her French course at the end of each school year. Acceptance to participate reached more than 90%. Among the 393 examined at grade 6, 17% did not participated at Secondary 1: the reason was either no more interest in participating (7%), or moving of the family away from the school board territory (10%). Finally, the transition to high school involved moving to a different school for all students.

Instruments and measures

The questionnaire by Paris and Oka (1986) was translated in French and was used to assess self-efficacy beliefs in French. The questionnaire comprises nine items dealing with students' appraisal of their ability in learning French (ex.: "I am one of the best students in my French class."). They were instructed to respond to the items on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree. The higher the average score the higher students's self-efficacy beliefs in French. Cronbach alpha coefficient were respectively .78 and .77 at grade six and Secondary 1.

Self-efficacy beliefs in the use of subject-related learning strategies were assessed using a French version (M'Bekou, 1996) of the questionnaire developped by Bandura (1989). Students were asked to evaluate each of the fourteen statements on a Likert scale ranging from 1 (totally unable) to 7 (perfectly able). As for the following example, each statement dealt with how capable students feel about using a specific useful strategy in order to do various activities required by their French teacher: "To search in the school library information, documents, or references you may need for your work in French."). Again, the higher the average score the higher students's self-efficacy beliefs in the use of subject-related learning strategies. Cronbach alpha coefficient reached respectively .87 and .86 at grade six and Secondary 1.

Goals related to French were measured by three scales produced and validated by Bouffard, Vezeau, Romano, Chouinard, Bordeleau, and Filion (1998). For each statement,

students had to specify their agreement on a 6 point Likert scale ranging from strongly disagree to strongly agree. The *Avoidance Goals Scale* (α=.65 and .72 respectively at grade six and Secondary 1), comprising seven items, measured the degree to which subjects set their goals on simply passing while doing the least possible work "In French, I do no more work than what is necessary just to to not fail"). The *Mastery Goals Scale* (α=.84 and .88 respectively at grade six and Secondary 1), comprising eight items, measured to what extent subjects wished to master the content of their French course ("It is important to me to master the knowledge and skills we are supposed to learn in the French course"). The *Performance Goals Scale* (α=.66 and .74 respectively at grade six and Secondary 1), comprising seven items, measured to what degree subjects set themselves the target of being among the best in their class and of obtaining a high mark in French: "To me, the most important in my French class is to be among the best students").

Finally, the final marks in French students obtained at the end of each school year were used to measure academic performance. At Secondary 1, academic performance was assessed using percentage scores whereas at elementary school it was assessed using a criterion scale comprising the five following categories:

1) Fail to reach the objectives and show serious difficulties.

2) Reach partially the objectives and show some learning difficulties.

3) Reach the objectives and the expectations.

4) Reach the objectives and go beyond the expectations.

5) Show outstanding competency.

Procedure

At each spring of the study, students were met in a group session in their regular class to fill out questionnaires. In order to reduce social desirability, students were informed that there was no correct or incorrect response and that their answers were to be kept confidential. They were requested to respond individually and although no time limit was imposed, most sessions lasted around 35 and 30 minutes respectively at grade six and Secondary 1.

Results

Preliminary analyses used ANOVA to examine whether variables under study differ according to whether students participated at both years or only at grade six. Results showed no difference between groups leading to conclude that the final sample was similar to the initial one.

The first objective is to examine how self-efficacy beliefs in French, self-efficacy beliefs in the use of subject-related learning strategies, and learning goals of students change after their transition from elementary to secondary school according to their achievement levels in grade six and their gender. In order to do so, students whose academic achievement at grade six was upper than the median were classified in the high group whereas all others were classified in the low group. Two multivariate analyses of variance with repeated measures (2X2X2) were used to examine changes from elementary to high school in the variables according to students' gender and level of academic achievement at grade 6, with time of measurement as a within subject factor. The first MANOVA was performed on the two self-efficacy measures and the second included the three types of goals. Tests of simple effect (p<.05) were used in order to examine interaction effects. Table 1 presents means and standard deviations of dependent variables according to time of measurement and students' gender and level of academic achievement at grade six.

With regard to self-efficacy beliefs, significant effects were found for level of academic achievement $F(1,334)=33.16$, p<.001, and time of measurement $F(1,334)=36.20$, p<.001. At

both grade six and Secondary 1, students classified in the high group for academic achievement reported higher self-efficacy beliefs in French as well as in the use of subject-related learning strategies. In addition, students' scores at grade six were higher than those they reported at Secondary 1 for both self-efficacy beliefs in French (M=3.86 versus M=3.69), and in the use of subject-related learning strategies (M=5.69 versus M=5.39). Therefore, whatever students' gender or group of academic achievement, all reported a decrement in their self-efficacy beliefs after their transition from elementary to secondary school.

Table 1

Means and standard deviations ( ) of self-efficacy (SE) and types of goals according to time of measurement, students' gender and grade 6 level of academic performance (H=High; L=Low)

		Girls (n=186)		Boys (n=150)	
		Grade 6	Secondary 1	Grade 6	Secondary 1
School level					
SE/French (max.: 5)					
	L	3.66 (.61)	3.61 (.75)	3.67 (.67)	3.51 (.70)
	H	4.10 (.55)	3.86 (.60)	4.12 (.55)	3.86 (.55)
SE/strategy (max.: 7)					
	L	5.61 (.78)	5.38 (1.0)	5.51 (.79)	5.16 (.85)
	H	5.81 (.83)	5.56 (.72)	5.93 (.61)	5.50 (.77)
Types of goals					
Mastery (max.: 6)					
	L	5.11 (.63)	4.75 (.91)	4.94 (.90)	4.69 (.95)
	H	5.18 (.67)	4.85 (.75)	5.20 (.62)	4.99 (.79)
Performance (max.: 6)					
	L	3.58 (.82)	3.61 (.80)	3.71 (.83)	3.68 (.90)
	H	3.85 (.81)	3.79 (.86)	4.13 (.82)	3.92 (.86)
Avoidance (max.: 6)					
	L	2.86 (.79)	3.05 (.98)	3.08 (.78)	3.19 (1.0)
	H	2.53 (.90)	2.81 (.83)	2.85 (.80)	3.02 (.83)

Results of the analysis on types of learning goals revealed significant effects for gender, $F(1,334)=10.73$, $p<.001$, time of measurement $F(1,334)=5.69$, $p<.02$, and for level of academic achievement $F(1,334)=4.26$, $p<.05$. In addition, interaction effects were also found between time of measurement and types of goals $F(2,668)=17.08$, $p<.001$, and between level of academic achievement and types of goals, $F(2,668)=11.12$, $p<.001$. The interaction between time of measurement and types of goals was due to performance goals remaining stable while mastery goals decreased (M=5.10 versus M=4.80), and avoidance goals increased (M=2.84 versus M=3.02) from grade six to Secondary 1. The interaction between level of academic achievement and types of goals was due to students in the high academic achievement group reporting higher mastery and performance goals and lower avoidance goals than students in the low group. Finally, at both school levels girls reported lower performance and avoidance goals than did boys. To sum up, it appeared that whatever students' gender or group of academic achievement, all lowered their mastery goals and concurrently increased their avoidance goals following their transition from elementary to secondary school level.

The second aim of the study is to examine how evolves the pattern of relations between self-efficacy beliefs and learning goals according to students' gender and level of academic

achievement at the end of elementary school (see Table 2). The two sample test for correlation coefficient ($p<.05$) was used to verify whether the relations observed at grade six and Secondary 1 differ. The relations were generally stable from grade six to Secondary 1. Among the 28 comparisons of correlation coefficients computed only two were significantly different between school levels. Girls in the low academic achievement group were involved in both cases. They showed stronger links at Secondary 1 than at grade 6 between self-efficacy beliefs in French and avoidance goals (r=-.23 and r=-.56, respectively at grade six and Secondary 1), as well as between self-efficacy beliefs in the use of subject-related learning strategies and performance goals (r=.01 and r=.34, respectively at grade six and Secondary 1).

Table 2

Changes of interrelations between self-efficacy (SE) and types of goals according to students' gender and grade 6 level of academic achievement (H=High; L=Low)

	Girls (n=186)				Boys (n=150)			
	Grade 6		Secondary 1		Grade 6		Secondary 1	
School level	H	L	H	L	H	L	H	L
SE/French & SE/strategy	.56	.60	.49	.50	.51	.46	.52	.48
SE/French & mastery goals	.53	.37	.39	.54	.19	.56	.28	.40
SE/French & performance goals	.34	.23	.34	.42	.33	.32	.31	.46
SE/French & avoidance goals	-.41	**-.23**	-.39	**-.56**	-.55	-.27	-.29	-.33
SE/strategy & mastery goals	.61	.45	.55	.47	.40	.46	.22	.57
SE/strategy & performance goals	.19	**.01**	.10	**.34**	.10	.31	.17	.32
SE/strategy & avoidance goals	-.47	-.38	-.39	-.45	-.49	-.31	-.25	-.47

Note. Coefficients in bold characters indicate significant differences between elementary and secondary school.

The third objective is to compare, at both school levels, the relationships of the variables with students' academic achievement. It was hypothesized that at both school levels, self-efficacy beliefs related to French and those related to the use of strategies, as well as mastery goals, will impact positively on academic achievement, while performance and avoidance goals will have a negative effect.

All data were first converted into z scores. Because of the ordinal nature of the scale used to assess academic achievement at grade six, correlations between this latter and all independent variables to be included in the regression analysis were examined. This allowed to conclude that despite the ordinal nature of the scale assessing academic achievement, its relations with the independent variables were quasi linear. Also, examination of the colinearity indices (VIF) for all measures showed that all were inferior to 2, suggesting that multicolinearity should not affect the regression analysis' results, and that the linear relationship assumption between these variables could be supported. At each school level, students' academic performance in French was regressed on self-efficacy beliefs, learning goals and gender relations. Given that academic performance is usually related between school years and since we had students' academic performance in French at grade six, at Secondary 1 it was entered in a first block prior entering the other independent variables in the second block.

At grade six, results of the analysis showed that the variables accounted for 17.9% of the variance of students' academic performance in French, $F(4,326)=19.73$, $p<.001$. Examination of the semipartial correlations showed that the unique contribution of self-efficacy beliefs in French reached 10.2% of variance, that of gender was 3.4% whereas that of performance and mastery goals reached respectively 1.3% and 1.4%. As shown in Table 3, except mastery goals that were negatively related to academic performance and avoidance goals that were unrelated, all other variables were positively related.

Table 3

Results of analyses of regressions of academic performance at each school level

	Grade 6			Secondary 1		
	β	*t*	*p*	*β*	*t*	*p*
Grade six academic performance	–	–	–	.39	8.90	.0000
SE/French	.39	6.31	.0000	.31	5.95	.0000
SE/strategy	.09	1.55	.1234	.04	.845	.3986
Mastery goals	-.14	-2.40	.0217	-.13	-2.50	.0179
Performance goals	.13	2.25	.0251	.13	2.64	.0068
Avoidance goals	-.08	-1.47	.1429	-.02	-.430	.6670
Gender	.17	3.22	.0062	.21	4.77	.0000
% of variance explained	17.9%			39.4%		

At Secondary 1, together the variables accounted for 39.4% variance of students' academic performance in French $F(5,324)=41.59$, $p<.001$. The unique contribution of academic performance at grade six reached 14.9%, that of self-efficacy beliefs in French reached 9.8%, gender contribution was 6.6%, whereas that of performance and mastery goals reached respectively 1.7% and 1.5%. Similarly to what was observed at grade six, avoidance goals were unrelated to academic performance, mastery goals were negatively related and all other variables were positively related.

Finally, partial correlations between academic performance and each independent variable when controlling for all other variables were computed. These final analyses were ran in order to make sure that the importance of self-efficacy beliefs in explaining academic performance was not mainly due to its relation with the other variables. Since the relations may vary according to gender and academic achievement, these variables were took into account. Table 4 presents the correlation coefficients obtained. It allows to conclude that whatever students' gender and level of academic achievement, even when all other variables are controlled for, their self-efficacy beliefs remained significantly related to their academic performance.

Table 4

Partial correlations between academic performance and each variable according to students' gender and grade 6 level of academic achievement (H=High; L=Low) when controlling all other variables

	Girls (*n*=186)				Boys (*n*=150)			
	Grade 6		Secondary 1		Grade 6		Secondary 1	
School level	H	L	H	L	H	L	H	L
SE/French	.29**	.23*	.28**	.20*	.46***	.26*	.50***	.23*
SE/strategy	.01	.17	.08	.01	.09	.06	.04	.13
Mastery goals	-.14	.01	.05	-.16	.07	-.32*	-.22	-.18
Performance goals	.10	.21*	.09	.10	.10	.28*	.22	.23*
Avoidance goals	-.07	.02	-.05	.01	-.06	.07	-.12	-.05

Discussion

The first objective of this two-year longitudinal study was to examine, according to students' achievement levels in grade six, the variations in self-efficacy beliefs concerning their French course, relevant learning strategies as well as learning goals following their transition into secondary school.

The data from this study indicates that students experience reduced self-efficacy beliefs in the weighted subject matter and learning strategies upon reaching secondary school. Contrary to certain studies, which posit that students' gender and initial academic achievement can alter the impact of the transition to secondary school (Anderman & Midgley, 1997; Chung et al., 1998; Watt, 1998; Wigfield et al., 1991), these variables did not modify the present study's pattern of measured data. In this sense, our findings are closer to those, which suggest that the transition from primary to secondary school is a time when most students question their self-evaluation (Eccles et al., 1998). These findings also concur with Bandura's social cognitive theory (1986; Schunk, 1987, 1989, 1991; Viau, 1994), which proposes that individuals are more likely to reevaluate their competencies when they are faced with tasks involving a high-level of uncertainty or that represent an important challenge. Furthermore, in accordance with most research in the field, students in the high level group of academic achievement in grade six score higher in both measures of self-efficacy, both before and after their transition into secondary school, than students in the group with lower academic results. We will return to the relationship between self-efficacy beliefs and academic achievement later on.

In regard to students' learning goals, the analyses based on gender and students' level of academic achievement have shown that the data measured according to these variables in grade six remained constant in secondary 1. At both scholastic levels, students with high marks in grade six registered higher mastery and performance goals and lower avoidance goals than their peers in the lower group, while girls scored lower performance and avoidance goals than boys. However, in spite of these individual characteristics, the analyses also showed a reduction in mastery goals, stability in performance goals and an increase in avoidance goals for all students. However, despite the reduction in mastery goals, these still remain higher than the other two types of goals. On the whole, these findings concur with those of various authors, who have posited that a majority of students do reevaluate their learning goals during the transition to secondary school (Anderman & Maehr, 1994; Anderman & Midgley, 1997; Blyth et al., 1983; Eccles et al., 1984; Galloway, Rogers, Armstrong, Leo, & Jackson, 1995; Maehr & Anderman, 1993; Midgley, 1993; Midgley et al., 1995; Wigfield et al., 1991).

The second objective was to examine the evolution of interrelation patterns between the variables according to the two personal characteristics. This allowed to observe that although students' self-efficacy beliefs and learning goals differed from one year to another, the relations between these components of their motivational system remain constant. Therefore, if students reevaluate these components, the organizing structure of their motivational system remains unaffected, a conclusion that is applicable to nearly all students. In the entire referenced literature on the impact of the transition to secondary school, we found no study that examined this issue under the same perspective. Therefore, other studies are needed to verify whether this conclusion of a relative stable organization of students' motivational system at the transition from elemntary to secondary school can be reproduced in different samples.

Finally, the study's third objective was to compare, at both scholastic levels, the relationship between motivational factors and academic achievement in the subject matter. According to the hypothesis, the analyses show that the self-efficacy belief related to the subject matter is the variable that contributes the most to the total variance in academic achievement. Its contribution reached approximately 10% at each academic level, even though in secondary 1 the influence of students' achievement in grade six had been controlled for. The higher percentage of variance explained in academic performance in Secondary 1 than in grade six is due mainly to the contribution of the previous year's achievement that was

accounted for in the analysis of Secondary 1, but not of grade six. These ultimate findings concur with numerous studies of various cohorts (groups of normal students, gifted and disabled students at the elementary, secondary and college levels, etc.) having shown that self-efficacy beliefs are a powerful predictor of academic achievement (Berry & West, 1993; and Pajares, 1996, for reviews of literature). Contrary to expectations, self-efficacy beliefs related to learning strategies did not show any link with achievement, which is on the whole not very surprising given the important relationship between subject and self-efficacy beliefs.

As previously stated, based on the widely accepted view in the field, our hypothesis also stated that the pursuit of performance goals would be detrimental to an appropriate academic functioning, whereas mastery goals would be favourable to it (Ames, 1992; Ames & Archer, 1988; Dweck & Elliott, 1983; Elliott & Dweck, 1988; Meece et al., 1988; Nolen & Haladyna, 1990). No support was found in that the expected negative relation between avoidance goals and achievement was not observed, whereas relationships between achievement and performance and mastery goals were contrary to expectations. An important difference between previous studies and ours is the distinction we made between performance goals that value performance as a means of attaining the best-possible results, and those, which we have named avoidance goals, that value performance as a means of avoiding failure. This distinction, suggested by certain authors (Elliot & Harackiewicz 1996; Nicholls, Patashnick, & Bobbit Nolen, 1985), allowed us to observe that the pursuit of performance goals, when distinct from avoidance goals, favours academic achievement. Dupeyrat (2000) has also shown that, in young adults returning to school, performance goals have had positive impacts on their academic functioning. In a study where one of the two types of performance goals corresponded to ours, Wolters, Yu, and Pintrich (1996) reported positive relationships with students' achievements in English, mathematics and social sciences.

The negative relationships between mastery goals and academic achievement observed at both scholastic levels, are, however, more difficult to explain, even though a few other studies have observed such relationships (Anderman & Midgley, 1997; Stipek & Gralinski, 1996). As stated earlier, these goals represent students' pursuit of the development and consolidation of skills and the acquisition of knowledge, and the pursuit of these goals would enable a valuation of effort, a resiliency in the face of setbacks and failures and an acceptance to face the challenges of difficult tasks that provide the occasions for learning new competencies. We can consider two possible explanations for our findings even though only a future study will enable to examine their validity. In the first place, it is possible that a relatively exclusive centring on this type of goal, without any concern for a good performance, enables students to develop new skills and knowledge that do not, however, have immediate positive effects on achievement because they are not part of the prescribed subject matter. The second explanation is quite different and considers the capacity of our scale, as well as most others in the field, to adequately measure the goals of all students. For instance, let us consider a student who believes he possesses limited competencies. Aware, or at least convinced of this, he probably will not aim for a high performance, which does not necessarily imply that he is only aiming to avoid failure. Such a student may want to function or learn with the best intentions. Therefore, when asked to specify his learning goals, he will reply that mastery goals best describe his pursuits. According to this explanation, among all students who pursue mastery goals, a certain number of students can hardly expect to achieve high performances, which could partly explain the negative association between this type of goal and achievement. In a recent study, Dupeyrat, Mariné, and Escribe (in press) were able to demonstrate that a distinction, within learning goals, between the acquisition and consolidation of knowledge and skills, and challenges and confrontation with difficult tasks, leads to different conclusions in regard to their relations with self-regulatory academic strategies. More studies must be done in order to better distinguish the different dimensions of mastery goals.

In short, all the data from the present research suggests that, as far as French studies is concerned, the transition from elementary to secondary school leads to a downgrading of students' self-efficacy beliefs and a reduced concern for mastery goals, but to an increase in avoidance goals. However, the structure of variables in students' motivational system is not

perturbed by these reevaluations as evidenced by the constancy of variable interrelatedness from one year to the next. Furthermore, the comparison of both academic levels in regard to factors of academic achievement has led to the observation of an important resemblance in relationship pattern. Except for the higher percentage of variance in Secondary 1 largely due to the inclusion of the previous year's performance in the analysis, the most important difference between school levels concerns the contribution of gender, which increases from 3.4% in grade six to 6.6% in Secondary 1. This observation must be considered, however, by taking into account the stereotypic nature of the subject matter, in this case French, in which girls generally outperform boys, as this study and others have shown. In this perspective, we can suggest that this result backs up the view held by certain authors who posit that the effects of stereotypes tend to increase with students' age (see Meece & Courtney, 1992, for a review of literature). A repeat-study, in which other academic subjects are examined, should verify that the findings observed here are not specific to the tested subject matter and can be applied to other domains of learning.

To conclude, the transition from elementary to secondary school is an important experience in students' schooling course. The numerous changes in school environment and organization, as well as in criteria of evaluation all concur to engage students in reevaluation of their self-system as learner. Given the importance of students' self-efficacy beliefs in academic functioning and achievement, teachers should pay attention to students who might be less secure and confident in their capability.

Notes

[1] In the major work by Eccles et al. (1998) – which reviews current knowledge on academic motivation and the main theoretical perspectives and findings from the empirical studies that have been carried out – the authors conclude that self-efficacy beliefs, which concern the evaluation of one's capacity to face a given situation, and successful outcome expectancies, which refer to the visualization of attaining a positive performance level, are theoretically distinct constructs. However, from an empirical point of view, they are closely correlated (+ or -, 75) and even older students can hardly distinguish them.

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336 élèves, 186 filles et 150 garçons, ont été rencontrés une première fois en sixième année du primaire et une seconde fois vers la même période l'année suivante, en première année du secondaire afin d'examiner l'impact du passage au secondaire sur leur motivation. Les

analyses montrent que peu importe leur niveau de rendement antérieur et leur sexe, tous les élèves présentent des modifications de leur sentiment d'auto-efficacité et des buts d'apprentissage qu'ils poursuivent suite à leur passage au secondaire. Cependant, aux deux temps de mesure, le sentiment d'auto-efficacité relatif à la matière est la variable qui contribue le plus à la variance totale observée dans le rendement dans la matière, et le patron des relations entre les variables et le rendement scolaire diffère peu. La discussion met l'accent sur les changements observés dans le sentiment d'auto-efficacité et les buts d'apprentissage et sur leurs rapports avec le rendement scolaire.

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Most relevant publications in the field of Psychology of Education:

Bouffard, T., Markovits, H, Vezeau, C., Boisvert, M., & Dumas, C. (1998). The relation between accuracy of self-perception and cognitive ability. *British Journal of Educational Psychology, 68*, 321-330.

Bouffard, T., Vezeau, C., & Bordeleau, L (1998). A developmental study of the relation between combined learning and performance goals and students' self-regulated. learning. *British Journal of Educational Psychology, 68*, 309-319.

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Chouinard, R., Vezeau, C., Bouffard, T., & Jenkins, B. (1999). Gender differences in the development of mathematics attitudes. *Journal of Research and Development in Education, 32*, 184-192.

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Motivation. Development.

Most relevant publications in the field of Psychology of Education:

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