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The Impact of Teacher-Student Relationships and Achievement Motivation on Students' Intentions to Dropout According to Socio-economic Status

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The main goal was to test if teacher-student relationships and achievement motivation are predicting dropout intention equally for low and high socio-economic status students. A questionnaire measuring teacher-student relationships and achievement motivation was administered to 2,360 French Canadian secondary students between 12 and 15 years old during the spring of 2005. A hierarchical multiple regressions model with interactions predicted their dropout intention. The moderator variable was SES (socio-economic status). Results showed that most predictors of dropout intention acted similarly for both SES. However, strong competence beliefs in mathematics predicted low dropout intention for students from high SES. Knowing that low SES students dropout more than others, our homogeneous predictors do not explain entirely the dropout phenomenon.

Keywords: dropout, teacher-student relationships, achievement motivation, SES (socio-economic status), gender

Theoretical Framework

School desertion is a widely studied complex phenomenon. Statistics showed that poor socio-economic context was a renowned factor to explain school success, failure and desertion (Brais, 1998; De Civita, 2002; Tremblay et al., 2000). Also, relational studies have shown that teachers are nearly the most significant social agents influencing motivation and can even have an impact on students' school commitment or disengagement (Goddard, Tschannen-Moran, & Hoy, 2001; McDermott, Mordell, & Stoltzfus, 2001; Fallu & Janosz, 2003). Theoretical and empirical researches on students' perceptions have also shown that motivational factors partially predict the behaviors that lead to dropout (Bandura, 1986; Caraway, Tucker, Reinke, & Hall, 2003; Janosz & Leblanc, 1996, 1997). In fact, achievement motivation, characterized by high competence beliefs, high interest for school, and high perceived school utility is a strong predictor of school engagement (Eccles, Wigfield, & Schiefele, 1998). A lack of specific interest for school material, low competence beliefs in major school subjects, and a low perceived school utility are predictors of disengagement, failure and dropout (Wentzel & Wigfield, 1998; Akey, 2006; Rumberger, 2004; Krapp, 2005). As seen, factors of influence on dropout and related studies are numerous, but the mechanisms of interaction between socio-economic status and other factors are yet not well documented.

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Objectives

The main goal of the study was to test the predictive value of teacher-student relationships and achievement motivation on dropout intentions of students from different socio-economic status. Firstly, we tested positive and negative relationships as predictors of the intention to dropout. Then, we tested interest for school material, competence beliefs and perceived school utility as predictors of the intention to dropout. Finally, we determined if the predictors of the intention to dropout were the same for students from low and high socio-economic status schools, while considering gender.

Methods

The research is quantitative and partially exploratory. A questionnaire using Likert scale was administered to students during spring of 2005. A total of 2,360 students from 19 French public high schools of Quebec, Canada, participated in the study. Students were between 12 and 15 years of age with a mean of 13.77 and a standard deviation of 0.95 (M = 13.77 years; SD = 0.95). For the whole sample, 49.2% were boys and 51.8% were girls. A sub-sample of 984 students (41.69%) was from ten low SES (socio-economic status) schools, while another sub-sample of 1,376 students (58.31%) was from nine high SES schools. To categorize students at a socio-economic level, we selected the students from the schools at the extremities of the governmental scale of socio-economic status indicator (MELS (Ministère de l'Éducation, du Loisir et du Sport), 2005) which considers the proportion of unschooled mothers and unemployed parents on the territory of each school.

Self-reported scales used to assess participants' achievement motivation mostly originated from the validated work of Janosz and Bouthillier (2004) and Ntamakiliro, Monnard, and Gurtner (2000). The scales used to assess teacher-student relationships were adapted from the work of Pianta (1999) and Pianta and Steinberg (1992). The motivational scales were of 7 entries from 1 (Totally disagree) to 7 (Totally agree) and the relational scales were of 5 entries from 1 (Never) to 5 (Always). The predicted variable is dropout intention with a Cronbach's alpha of 0.77 (α = 0.77). This scale is made of five items, for example, "I would be a happier person if I left school". The predictors are presented in Table 1. After assumptions of verification and provisory model's testing, the present final model was established with SES and gender interactions.

Table 1
Descriptions of the Predictors

Variable	Number of items	Example of item	α
Positive student-teacher relationship	6	I feel I am close to my teachers and I can trust them.	0.82
Negative student-teacher relationship	7	I don't get along with my teachers.	0.87
Interest for school	4	What we do at school is really interesting.	0.86
Interest for math	3	I am willing to invest time in Mathematics.	0.81
Interest for language arts	3	I am willing to invest effort in French tasks.	0.90
Competence beliefs in math	5	I consider myself good at Mathematics.	0.94
Competence beliefs in language arts	5	I consider myself good at French.	0.84
Perceived school utility	4	To obtain a job, it is important to succeed in school.	0.70

Results

The following analyses are from a single hierarchical multiple regression model divided by steps to

facilitate understanding. Each step is characterized by the addition of new predictors. In the next sections and tables, the validity of the model is given by the *F* (Fisher's ratio of variance). The coefficient *B* (Beta of regression) gives the adjustment made on the intercept by the new predictors. The standard deviation of Beta (*SD B*) is also shown. The *P* value gives the probability of *t*-students' score. The power of the model is given by the variation of R^2 as coefficient of determination where a value of 1 would mean that the regression model perfectly suits the data.

Step 1: Controlling for Gender, Age and Introducing SES

Controlling for gender, age and introducing SES only explains 1% of the variability of dropout intention score ($R^2 = 0.01$, $F_{(3, 2202)} = 10.92$, $p < 0.001$). As seen in Table 2, gender ($B = 0.14$; $SD\ B = 0.03$; $t = 5.04$; $p < 0.001$) and age ($B = 0.03$; $SD\ B = 0.01$; $t = 2.17$; $p < 0.05$) are significant, while SES is not. We can interpret that being a boy and being older can predict a higher intention to dropout.

Table 2

Controlling for Gender, Age and SES

Model		*B*	*SD B*	*t*
Step 1				
Constant	1.10	0.20	5.49	
Gender	0.14	0.03	5.04	***
Age	0.03	0.01	2.17	*
SES	0.02	0.03	0.84	

Notes. $^{*}p < 0.05$; $^{***}p < 0.001$; $R^2 = 0.01^{***}$ step 1.

Step 2: Predictive Value of Teacher-Student Relationships

The second step of analysis evaluates the predictive value of positive and negative teacher-student relationships as perceived by students. Introducing these variables improves the explanation of dropout intention model by 14% ($\Delta R^2 = 0.14$, $F_{(2, 2200)} = 155.87$, $p < 0.001$). As seen in Table 3, having positive relationships with teachers predicts low intention to dropout. ($B = -0.07$; $SD\ B = 0.02$; $t = 4.23$; $p < 0.001$). Inversely, having negative relationships with teachers predicts high intention to dropout ($B = 0.22$; $SD\ B = 0.01$; $t = 15.10$; $p < 0.001$).

Table 3

Predictive Value of Teacher-Student Relationships

Model	*B*	*SD B*	*t*
Step 2			
Constant	1.24	0.19	6.66
Gender	0.10	0.03	3.75***
Age	0.02	0.01	1.78
SES	-0.02	0.03	-0.75
Positive teacher-student relationships	-0.07	0.02	-4.23***
Negative teacher-student relationships	0.22	0.01	15.10***

Notes. $^{***}p < 0.001$; $R^2 = 0.01^{***}$ step 1; $\Delta R^2 = 0.14^{***}$ step 2.

Step 3: Predictive Value of Achievement Motivation

The variables related to achievement motivation are interest for school, competence beliefs in math, interest for math, competence beliefs in language arts and perceived school utility. Adding those variables improved our model's explanation of dropout intentions by 13% ($\Delta R^2 = 0.14$, $F_{(5, 2195)} = 87.20$, $p < 0.001$). As seen in Table 4, all variables predict negatively dropout intentions, except for competence beliefs in language arts, which is not significant ($B = -0.02$; $t = -1.74$; $p = 0.08$). Interest for school ($B = -0.10$; $SD\ B = 0.01$; $t = -8.19$; $p < 0.001$) and perceived school utility ($B = -0.09$; $SD\ B = 0.01$; $t = -7.22$; $p < 0.001$) are the strongest predictors of low dropout intentions. Competence beliefs in math ($B = -0.06$; $SD\ B = 0.01$; $t = -6.99$; $p < 0.001$) and interest for math ($B = -0.05$; $SD\ B = 0.01$; $t = -4.38$; $p < 0.001$) are also predicting low dropout intentions. Globally, variables, such as gender, age, SES, type of teacher-student relationships, and students' achievement motivation explain 28% of the variability of intentions of dropout.

Table 4

Predictive Value of Achievement Motivation

Model	*B*	*SD B*	*t*
Step 3			
Constant	1.58	0.17	9.17
Gender	0.10	0.03	4.00***
Age	0.00	0.01	0.10
SES	-0.04	0.03	-1.77
Positive relationships	0.02	0.02	1.18
Negative relationships	0.12	0.01	8.06***
Interest for school	-0.10	0.01	-8.19***
Competence beliefs in math	-0.06	0.01	-6.99***
Interest in math	-0.05	0.01	-4.38***
Competence beliefs in language arts	-0.02	0.01	-1.74
Perceived school utility	-0.09	0.01	-7.22***

Notes. $^{***}p < 0.001$; $R^2 = 0.01^{***}$ step 1; $\Delta R^2 = 0.14^{***}$ step 2; $\Delta R^2 = 0.13^{***}$ step 3.

Step 4: Interaction Effects With SES

From all the possibilities of interaction effects with SES, competence beliefs in math (see Table 5) is the only significant variable with a coefficient $B = -0.05$ ($SD\ B = 0.02$; $t = -2.38$; $p < 0.01$).

As we can see in Figure 1, most of the students have an average intention of dropout. For low SES students, their level of competence beliefs in math does not predict their intention of dropout, but for high SES students it does. For students from high SES, the intention to dropout is lower when they have high competence beliefs in math.

Because gender remained significant at each previous steps of analysis and that studies have shown that boys are more affected by dropout than girls (MELS, 2005), triple interactions with gender were also tested. We hypothesized that low SES boys with low competence beliefs in math would have higher intentions of dropout than others. We tested this interaction, but the results did not reach significance ($B = -0.02$; $t = -1.68$; $p = 0.08$). None of the triple interactions tested were significant. For that reason, the table is not presented to alleviate the present document. To sum up, interaction variables improved by 1% the model's explanation of intention to dropout ($\Delta R^2 = 0.01$, $F_{(7, 2188)} = 1.43$, $p < 0.001$). Therefore, the entire model tested explained 29% of the variability of intention to dropout.

Table 5

Interaction Effect With SES

Model	*B*	*SD B*	*t*	
Step 4				
Constant	1.89	0.172	90.15	
Gender (0 = girl, 1 = boys)	0.09	0.03	40.02	***
Age	0.01	0.01	0.07	
SES (0 = low, 1 = high)	-0.04	0.03	-1.57	
Positive relationships	0.02	0.03	0.81	
Negative relationships	0.10	0.02	4.18	***
Interest for school	-0.09	0.02	-4.23	***
Competence beliefs in math	-0.03	0.01	-2.15	*
Interest for math	-0.03	0.02	-3.94	***
Competence beliefs in language arts	-0.08	0.02	-1.73	
Perceived school utility	-0.07	0.02	-3.49	***
Positive relationships * SES	0.00	0.03	-0.06	
Negative relationships * SES	0.02	0.03	0.62	
Interest for school SES	-0.02	0.03	-0.82	
Competence beliefs in math * SES	-0.05	0.02	-2.38	**
Interest for math * SES	0.04	0.02	1.82	
Competence beliefs in language arts * SES	0.02	0.02	91	
Perceived school utility * SES	-0.03	0.03	-1.04	

Notes. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; $R^2 = 0.01$ step 1; $\Delta R^2 = 0.14$ step 2; $\Delta R^2 = 0.13$ step 3; $\Delta R^2 = 0.01$ step 4.

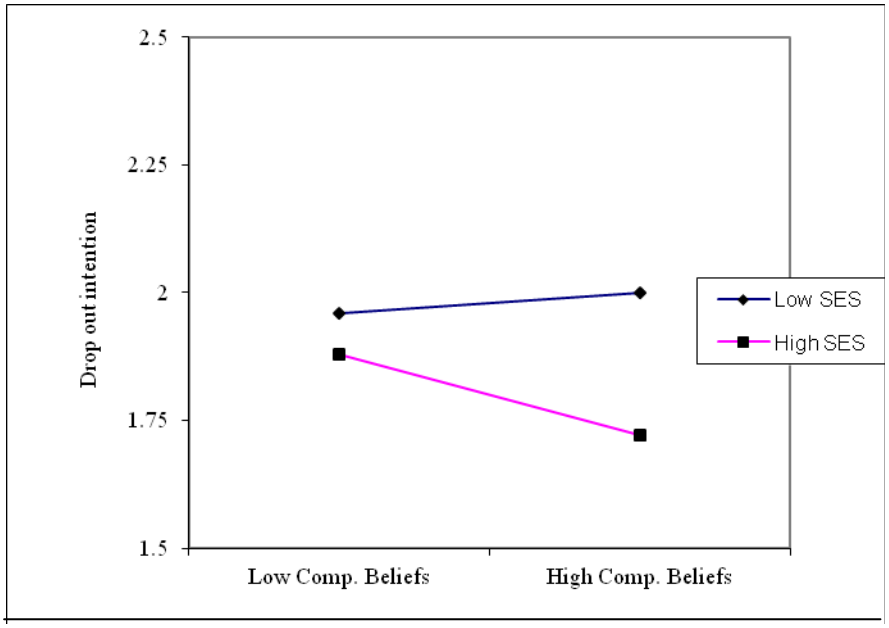

Figure 1. Interaction effect between SES and competence beliefs in maths as predictors of dropout intentions.

Conclusions

As results show, a negative relationship with teachers remains the strongest predictor of high intentions to dropout for most students. Moreover, high competence beliefs in math are significant in preventing dropout

intentions for students and mostly, for those from high SES schools, despite of all achievement motivation's variables. Comparing low SES students to those from high SES, the gender effect is consistent with the literature. For low SES boys, who are more affected by dropout, our model is probably not well specified and lacking some predictors. For example, lineal SES indicator combined with regression method of analysis could prevent detection of non-lineal dropout phenomenon, occurring mostly in lowest SES neighborhoods and which can be explained by the epidemic theory (Crane, 1991; Jencks & Mayer, 1990).

Educational Importance of the Study

The current results suggest that already documented influence of teacher-student relationship is as important as achievement motivation in predicting intentions to dropout for all students. As educational repercussion, special training should be given to high school teachers in order to enhance their ability to create positive and supportive relationships and mostly, to inform them on how to avoid negative relationships with their students. As pedagogical measures, we propose to integrate the philosophy of target education program established in 1990 by Aumua and Drake (2002) and the French intervention program CLASSE (Chouinard, 2004-2005), which both give practical tools to favor respectful and harmonious teacher-student relationships, as well as to enhance achievement motivation in the regular curriculum of high schools.

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