Motivation towards extracurricular activities and motivation at school: A test of the generalization effect hypothesis

Anne-Sophie Denault[a*]

Frédéric Guay[b]

* Corresponding author.

[a] Département des fondements et pratiques en éducation, Université Laval, 2320, rue des Bibliothèques, Québec, QC, Canada, G1V 0A6. Phone: 1-418-656-2131 # 6930. Fax: 1-418-656-2885. E-mail: anne-sophie.denault@fse.ulaval.ca

[b] Département des fondements et pratiques en éducation, Université Laval, 2320, rue des Bibliothèques, Québec, QC, Canada, G1V 0A6. Phone: 1-418-656-2131 # 2379. Fax: 1-418-656-2885. E-mail: frederic.guay@fse.ulaval.ca

Abstract

Participation in extracurricular activities is a promising avenue for enhancing students' school motivation. Using self-determination theory (Deci & Ryan, 2000), the goal of this study was to test a serial multiple mediator model. In this model, students' perceptions of autonomy support from their extracurricular activity leader predicted their activity-based intrinsic and identified regulations. In turn, these regulations predicted their school-based intrinsic and identified regulations during the same school year. Finally, these regulations predicted their school-based intrinsic and identified regulations one year later. A total of 276 youths (54% girls) from disadvantaged neighborhoods were surveyed over two waves of data collection. The proposed mediation model was supported for both types of regulation. These results highlight the generalization effects of motivation from the extracurricular activity context to the school context.

Keywords: Motivation, Extracurricular Activities, Intrinsic Motivation, High School Students

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In the face of high rates of school dropout, especially among students from disadvantaged neighborhoods (Ministère de l'Éducation, du Loisir et du Sport [MELS], 2012), researchers, practitioners, and politicians are trying to find ways to keep students in school at least until they obtain a high school diploma. One way to do this is to promote their school motivation (Vallerand, Fortier, & Guay, 1997). Multiple actors in the school system, such as teachers, can promote school motivation among high school students (Reeve, Jang, Carrell, Jeon, & Barch, 2004). Yet, in this study, we decided to move beyond the classroom and to focus on another context likely to make a difference in students' motivation to attend school: participation in extracurricular activities (ECAs).

In their review, Farb and Matjasko (2012) found that participation in ECAs during the high school years is associated with positive academic outcomes, such as higher grades, aspirations, and probability of pursuing a post-secondary education. They also noted that it is linked to lower rates of school dropout. However, few mechanisms have been proposed and tested to explain why students benefit from their participation in ECAs (Farb & Matjasko, 2012). Can involvement in these activities increase their motivation to attend school? Using self-determination theory (SDT), we examined how students' motivation for an ECA could enhance their intrinsic and identified regulations to attend school (Deci & Ryan, 2000; Ryan & Deci, 2000). To our knowledge, no studies to date have examined generalization effects pertaining to intrinsic and identified regulations from the ECA context to the school context. Such generalization effects are important to investigate because they will provide a richer understanding of the predictors of school motivation. If we can promote school motivation by

involving students in ECAs, school staff will have an additional strategy to ultimately keep them in school.

These questions were examined in a sample of high school students from disadvantaged neighborhoods. These students are usually considered at greater risk of dropping out (Crowder & South, 2003; DePaoli, Balfanz, & Bridgeland, 2016; Duncan & Murnane, 2011). They also tend to report lower levels of school motivation (Wang & Fredricks, 2014). Yet, participation in ECAs may be particularly important for these students. Given that other contexts of their lives may not be developmentally optimum, these students may benefit more from their participation in ECAs, compared with students from more advantaged neighborhoods (Blomfield & Barber, 2011). This sample is thus especially suited to examining the generalization effects of motivation from the ECA context to the school context.

In this study, using SDT (Deci & Ryan, 2000; Ryan & Deci, 2000), we propose a serial multiple mediator model, in which students' perceptions of autonomy support from their extracurricular activity leader will predict their activity-based intrinsic and identified regulations. In turn, these regulations will predict their school-based intrinsic and identified regulations during the same school year. We thus expect that the generalization effects will occur during the same school year (Time 1; T1) and that the increase in school motivation will have lasting effects one year later (Time 2; T2). In other words, we believe that perceived autonomy support from ECA leaders can influence school motivation indirectly through a series of mechanisms operating over time involving generalization effects from activity-based motivation to school-based motivation. The proposed model is depicted in Figure 1. Each link of interest will be presented in the following sections (bold lines in the figure).

Activity Leaders' Autonomy Support and Activity-Based Intrinsic and Identified Regulations

According to SDT, the degree to which the social environment tends to support rather than thwart individuals' basic needs is crucial. In this study, we focused on the need for autonomy. The need for autonomy is defined as "the necessity of experiencing a sense of choice, willingness, and volition as one behaves" (Deci et al., 2013, p. 113). Activity leaders can support autonomy in the ECA context. Adults' autonomy-supportive behaviors consist in recognizing adolescents' perspectives and providing choices and options, as well as in offering them opportunities to act volitionally and to feel responsible for their own learning and behaviors (Deci et al., 2013). When adults support students' autonomy, students are likely to experience autonomous forms of motivation towards their activities (links a_1 and a_3 in Figure 1; Guay, Ratelle, & Chanal, 2008). Autonomous forms of motivation refer to the degree to which it is integrated within a person's sense of self (Guay, Ratelle, Larose, Vallerand, & Vitaro, 2013). In this study, two types of autonomous regulations were considered, namely intrinsic and identified regulations. *Intrinsic regulation* is the most autonomous form of motivation. It occurs when an individual engages in an activity for its own sake, because the activity is enjoyable, interesting, and satisfying. *Identified regulation* occurs when behaviors are extrinsically motivated, but are still performed with a sense of choice and volition.

The positive association between perceived autonomy support and autonomous forms of motivation, such as intrinsic and identified regulations, has been found in numerous studies in the sports domain (e.g., Gagné, Ryan, & Bargmann, 2003; Gillet, Berjot, Vallerand, & Amoura, 2012; Gillet, Vallerand, Amoura, & Baldes, 2010; Mageau & Vallerand, 2003; Pelletier, Fortier, Vallerand, Brière, 2001). Yet, it is likely that this positive association holds also when other types of activities, such as performing arts (e.g., band and drama) and school clubs (e.g., student government and science club), are considered. These types of activities were also considered in this study.

Hypothesized Generalization Effects Between Activity-Based Regulations and School-Based Regulations During the Same School Year

If we want to know more about the potential of ECAs for promoting school motivation among high school students, one fundamental question to be answered is whether activity-based regulations could be generalized to motivation that regulates school behaviors (links d_{21} and d_{43} in Figure 1). Two theoretical models, based on SDT, have addressed this question. First, the hierarchical model of intrinsic and extrinsic motivation (HMIEM; Vallerand, 1997) posits bidirectional effects between motivation at similar contextual levels (i.e., an individual's motivation in a specific context, such as leisure and education). To explain these effects, Vallerand (1997) mentioned that the experience of a behavior in a given context creates a script containing motivational patterns that can be subsequently reactivated in closely related contexts.

Second, the trans-contextual model of autonomous motivation (TCM; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003) also outlines the mechanisms through which autonomous motivation for physical education activities leads to autonomous motivation for out-of-school physical activities. In addition to the script mechanism highlighted in the HMIEM, this model proposes that students who experience autonomous motivation in the physical education context will tend to internalize such activities as potential means to satisfy their psychological needs. They will also be attracted to similar activities in the future. Notably, the TCM posits that (a) perceived support for autonomous motivation predicts autonomous motivation within physical education contexts and (b) autonomous motivation for physical activities in an educational context predicts autonomous motivation for similar activities in out-of-school contexts. These links were empirically supported in a recent meta-analysis (Hagger & Chatzisarantis, 2016).

Both the TCM and the HMIEM propose that the generalization effect is likely to occur between educational and leisure contexts. When students experience autonomous motivation in a

playful and voluntary context in their own school, they may be more motivated to attend school. This may be especially true for students from disadvantaged neighborhoods, who are, as mentioned earlier, at greater risk of presenting low levels of school motivation (Wang & Fredricks, 2014). Because they choose their activities based on their interests, they may develop a more positive view of school. In turn, this may help increase their autonomous motivation in school. As proposed by Blomfield and Barber (2011), positive experiences—such as motivation—during ECAs may be particularly significant for students from disadvantaged neighborhoods because they may not have these experiences elsewhere during the school day. Even though the educational context can be more goal-driven, controlled, and focused on intellectual or academic matters, there are still multiple similarities between the educational and ECA contexts: they are supervised by an adult who could be a teacher, are experienced with a group of familiar peers who could be classmates, and are focused on intellectual, socio-emotional or physical skill building. Therefore, we believe that generalization effects are possible between the ECA and the school contexts when it comes to motivation, but only during the same school year, when students are involved in their activities.

The Serial Multiple Mediation Effects

As highlighted in Figure 1, we believe that the variables included in the model will follow a sequence or will operate in a series over time (links $a_1d_{21}b_2$ and $a_3d_{43}b_4$). More specifically, autonomy support from the activity leader at T1 will trigger activity-based intrinsic and identified regulations at T1. In turn, these regulations are likely to predict T2 school-based intrinsic and identified regulations through the mediating effects of T1 school-based intrinsic and identified regulations. Intrinsic and identified regulations have been shown to be quite stable over time (links b_2 and b_4; Guay, Marsh, Sénécal, & Dowson, 2008; Guay, Ratelle, Roy, & Litalien, 2010). The generalization effects of motivation from the ECA context to the school context is thus

expected to occur through mediating mechanisms involving time. More specifically, students who are engaged in an ECA with high levels of autonomy support at a given point in time are likely to experience lasting effects for their school motivation. This is because this ECA will produce immediate effects on their school motivation at this point in time and these elevated levels of school motivation will predict changes in school motivation one year later. In other words, we do not expect an ECA in one school year to influence motivation one year later without first increasing the motivation experienced in the same school year. The only way to verify these assumptions is to look at the direct and indirect effects simultaneously through mediation analyses. What our model adds to previous research is that both T1 and T2 school-based intrinsic and identified regulations are considered in the model to verify whether the generalization effects from the ECA context to the school context at T1 can have lasting effects on school motivation at T2.

Study Objectives

In a sample of high school students from disadvantaged neighborhoods, we used a longitudinal design with two time points at a one-year interval (T1 and T2) to test a serial multiple mediator model (Hayes, 2013). This model is depicted in Figure 1. First, we expected positive predictive associations between perceived autonomy support and activity-based intrinsic and identified regulations at T1. Second, we expected positive predictive associations between both types of regulation in the ECA context and both types of regulation in the school context during the same school year (T1). Third, we expected a significant indirect association between perceived autonomy support and school-based motivation at T2 through activity-based motivation and school-based motivation at T1, representing our serial multiple mediator model. Activity type and participation intensity were included as controls in the model to verify whether they act as confounding variables. For example, it is possible that being involved in academic-

oriented activities, given their similarities to classroom activities, affects both activity-based and school-based motivation, therefore explaining the generalization effects. It is also possible that the more students spend time in their activities, the more they are exposed to autonomy-supportive behaviors and the more they are motivated towards the activity. For instance, Hansen and Larson (2007) found that students who spent many hours per week in activities reported higher scores on individual and social experiences than those who spent fewer hours per week in their activities.

Overall, this study is likely to extend the literature in at least three important ways: (a) by providing further support for the potential generalization effects of motivation between leisure and educational contexts, as proposed by the HMIEM (Vallerand, 1997) and the TCM (Hagger et al., 2003); (b) by using a short longitudinal design to test generalization and sequencing effects of motivation from the ECA context to the school context; and (c) by looking at motivational processes as mechanisms for explaining the potential benefits of ECAs among a sample of disadvantaged high school students. This may, in turn, contribute to our understanding of how ECAs can make a difference in the school life of high school students from disadvantaged neighborhoods.

Methods

Participants, Study Design, and Procedures

The participants come from a larger longitudinal project on ECAs and school dropout among students from disadvantaged neighborhoods. In this project, a stratified sample of 3000 grade 7 to grade 10 high school students from disadvantaged neighborhoods in the province of Quebec, Canada, was formed based on sex, grade level, and region. In the school system where the data were collected, students attend high school for five consecutive years, from the grade 7 to grade 11, starting at age 12 and usually ending at age 17. To be included in the sample,

students had to attend schools with a score of 8, 9 or 10 on the two indices of deprivation provided by the MELS (2007–2008). According to these indices, schools are rated on a scale from 1, considered the most advantaged, to 10, considered the most disadvantaged. These two indices are: (a) socioeconomic status (e.g., proportion of families whose mothers did not graduate, proportion of households whose parents were not employed) and (b) low income cut-offs (i.e., income thresholds below which a family will likely devote a larger share of its income to their food, shelter, and clothing needs than the average family; Statistics Canada, 2016).

The 3000 students in the stratified sample received a questionnaire by mail. Of these students, 952 completed and returned the questionnaires (T1; 56% girls). One year later (T2), 639 of these students returned another completed questionnaire (67% retention rate; 58% girls). Differences between the retained and non-retained samples in the T1 socio-demographic information revealed that the retained students were more likely to be girls, younger, and from intact and more educated families than the non-retained students. For the purpose of this study, only students who participated in at least one ECA at T1 were included in the analytical sample (n = 279, 54% girls, M_{age} = 14.56, SD = 1.42). Most of these students were French-speaking (99%) and living with their two biological parents (59%). Sixty-seven percent of these students were still involved in the study at T2 (n = 186).

Measures

Participation in ECAs. After reading a definition of "extracurricular activity" (i.e., a non-mandatory activity organized by the school outside of class periods), students were first asked to write down the name of an activity in which they engaged. If they participated in more than one activity, they were asked to indicate the one that was most important to them. Second, they were asked to answer a series of questions concerning the number of hours they spent weekly doing their activity, how long they have been involved, etc. Students were then asked to

refer specifically to this activity when answering questions concerning their intrinsic and identified regulations and their leaders' autonomy support. Overall, 69% of the activities were sports, 19% were performing arts, 10% were school clubs, and 2% were other types (e.g., cooking classes, religious activities). For the control variable based on activity types, two categories were created: 1 = school clubs (n = 27) and 0 = other types of activities (n = 245; four missing values were observed on this variable). For participation intensity, students had to report the number of hours per week they spent in their ECA, ranging from 1 (less than one hour) to 7 (more than 10 hours). In 68% of the cases, students spent from one to four hours per week in their activity.

Perceptions of leaders' autonomy support in the ECA. We assessed perceived autonomy support from the activity leader with a French version of the short form of the Learning Climate Questionnaire (LCQ; Williams & Deci, 1996), which contains six items that can be adapted to specific sources of support (e.g., "My activity leader provides me with choices and options"). These items are rated on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The original 15-item version of the LCQ shows high internal consistency (α = .96; Willam & Deci, 1996). In this study, Cronbach's alpha was .94.

Intrinsic and identified regulations in the ECA context. Activity-based intrinsic and identified regulations were assessed by the French version of the Leisure Motivation Scale (EML; Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996). In this questionnaire, each type of regulation is assessed by four items representing a possible reason for participating in ECAs (e.g., "For the pleasure I feel in having exciting experiences," "Because, in my opinion, it is a good way to develop social, physical or intellectual skills that will be useful to me later on"). These items are rated on a seven-point scale ranging from 1 (*does not correspond at all*) to 7

(*corresponds exactly*). The validation study of the EML supported its factorial and convergent validity, as well as its internal and temporal consistency (Pelletier et al., 1996). In this study, Cronbach's alphas were .67 and .79 for intrinsic and identified regulations, respectively.

Intrinsic and identified regulations in the school context at T1 and T2. School-based intrinsic and identified regulations at both time points were measured using the French version of the Academic Motivation Scale (AMS; Vallerand, Blais, Brière, & Pelletier, 1989). In this questionnaire, as in the EML, each type of regulation is measured by four items representing a possible reason for attending school (e.g., "Because I experience pleasure and satisfaction while learning new things," "Because it will eventually enable me to enter the job market in a field that I like"). Items are scored on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Previous studies have supported the factorial, convergent, and divergent validity, as well as the internal consistency, of the AMS (see Guay, Morin, Litalien, Valois, & Vallerand, 2015, for a review). In this study, Cronbach's alphas were .87 and .91 for intrinsic regulation at T1 and T2, respectively, and .71 and .75 for identified regulation at T1 and T2, respectively.

Analytical Strategy

Analyses were conducted using Mplus version 7.4 (Muthén and Muthén, 2012), which uses full information maximum likelihood (FIML) estimation to deal with missing data (on average, 11% of the data were missing across all the variables used in the analyses). Since some of the variables were not distributed normally, the robust maximum likelihood estimation was used to obtain unbiased standard errors for the parameter estimates. Models that fit the data well usually have a non-significant chi-square value, a comparative fit index (CFI) greater than .95, and a root mean square error of approximation (RMSEA) of less than .06 (Hu and Bentler, 1999).

Before the serial multiple mediation model (Hayes, 2013) was tested, confirmatory factor analyses (CFA) were performed to verify that the latent constructs were correctly measured in the specific sample under investigation (i.e., students from disadvantaged neighborhoods). Because school-based intrinsic and identified regulations were assessed at two time points (T1 and T2), correlated uniquenesses between the same indicators assessed at both time points were taken into account (i.e., the indicators' residual variances were correlated over time; Marsh & Hau, 1996).

To test the serial multiple mediation model, a series of paths were specified. These paths are depicted in Figure 1, except for the control variables. All latent variables were regressed on both activity types (school clubs vs. others) and on participation intensity. As demonstrated by Hayes (2013), in a serial multiple mediator model, the mediators operate in series, with mediators linked together in a causal chain. In this model, the total effect of the independent variable (i.e., perceived support from the ECA leader at T1) on the dependent variable (i.e., motivation to attend school at T2) separates into direct and indirect components. This analysis thus provides estimates of total, total indirect, specific indirect, and direct effects. If we look at Figure 1 and take intrinsic regulations as an example of serial mediators, the direct effect of perceived autonomy support on T2 school-based intrinsic regulation is c'_1; the specific indirect effect of perceived autonomy support on T2 school-based intrinsic regulation through T1 activity-based intrinsic regulation is a_1b_1; the specific indirect effect of perceived autonomy support on T2 school-based intrinsic regulation through T1 school-based intrinsic regulation is a_2b_2; the specific indirect effect of perceived autonomy support on T2 school-based intrinsic regulation through both T1 activity-based intrinsic regulation and T1 school-based intrinsic regulation is $a_1d_{21}b_2$; the total indirect effect is $a_1b_1 + a_2b_2 + a_1d_{21}b_2$; and the total effect ($c_1$) is equal to $c'_1 + a_1b_1 + a_2b_2 + a_1d_{21}b_2$. The confidence intervals for the indirect effects were also obtained using bootstrapping

(n = 1000). This method does not impose the assumption of normality of the sampling distribution, which is unlikely to be met with relatively small samples (Preacher & Hayes, 2008).

Results

Descriptive Analyses

Descriptive statistics for all items used in this study are presented in Table 1. The data were also screened for potential multivariate outliers on the various items and three individuals were removed from the dataset following these analyses (n = 276).

Confirmatory Factor Analyses

The measurement portion of the model was supported: $\chi^2(376) = 641.08$, $p = .000$, CFI/TLI = .922/.909, RMSEA = .05 (90% CI = .04, .06). For perceived leader autonomy support, loadings ranged from .79 to .89. In the activity context, loadings for intrinsic and identified regulations ranged from .38 to .70 and from .63 to .77, respectively. In the school context, loadings for intrinsic regulation ranged from .76 to .84 at T1 and from .77 to .92 at T2, and loadings for identified regulation ranged from .53 to .70 at T1 and from .59 to .76 at T2. Correlations between the latent factors are presented in Table 2. Concerning the associations of interest, we can see that perceived autonomy support from the activity leader is significantly and positively associated with activity-based intrinsic and identified regulations. Activity-based intrinsic regulation is also positively associated with school-based intrinsic regulation at T1 (r = .30). The same is true for identified regulation (r = .47). Correlations between school-based intrinsic and identified regulations at T1 and T2 are .70 and .47, respectively, revealing that intrinsic regulation is more stable than identified regulation over a one-year period. Intrinsic and identified regulations are also highly correlated, whatever the context or the measurement time (e.g., r = .67 for the school context at T1).

The Serial Multiple Mediator Model

Results for the serial multiple mediator model are depicted in Figure 1 and presented in Table 3 and Table 4, $\chi^2(428) = 715.32$, $p = .000$, CFI/TLI = .918/.905, RMSEA = .05 (90% CI = .04, .06). Concerning the control variables (not shown), the activity type (school clubs vs. others) was significantly associated with activity-based intrinsic regulation (beta = -.18, $p = .015$) and school-based intrinsic regulation (beta = .16, $p = .009$). In addition, participation intensity was significantly associated with activity-based intrinsic and identified regulations (beta = .24, $p = .000$ and beta = .23, $p = .000$, respectively). No other links were significant.

Concerning the associations of interest, as expected, students' perceptions of autonomy support from their activity leader predicted greater activity-based intrinsic and identified regulations (a_1 and a_3). In addition, there were significant generalization effects from both types of activity-based regulations to both types of school-based regulations at T1 (d_{21} and d_{43}). The more students reported intrinsic and identified regulations in the context of their ECA, the more they reported such regulations to attend school during the same school year. Even though multiple specific indirect effects were tested in this model, as shown in Table 4, those of interest are the two serial indirect effects of perceived autonomy support on school-based intrinsic and identified regulations at T2 through both activity-based and school-based intrinsic and identified regulations at T1 ($a_1d_{21}b_2$ and $a_3d_{43}b_4$). These two serial indirect effects were significant and revealed that students' perceptions of autonomy support from their ECA leader predicted their intrinsic and identified regulations towards the activity, which in turn predicted their intrinsic and identified regulations towards school at T1, which in turn predicted intrinsic and identified regulations towards school one year later at T2.

As shown in Tables 3 and 4, it is also noteworthy that perceived autonomy support from the activity leader predicted school-based intrinsic regulation at T1 indirectly through activity-based intrinsic regulation (a_1d_{21}). It also predicted school-based identified regulation both directly (a_4) and indirectly through activity-based identified regulation (a_3d_{43}). Overall, the model accounted for 39% of the variance of T1 activity-based intrinsic motivation, 36% of the variance of T1 activity-based identified regulation, 17% of the variance of T1 school-based intrinsic regulation, 20% of the variance of T1 school-based identified regulation, 51% of the variance of T2 school-based intrinsic regulation, and 24% of the variance of T2 school-based identified regulation.

Discussion

The main goal of this study was to test the possible generalization effects of motivation from the ECA context to the school context in a sample of high school students from disadvantaged neighborhoods. As mentioned in the introduction, our hypotheses were in line with SDT (Deci & Ryan, 2000; Ryan & Deci, 2000), the HMIEM (Vallerand, 1997) and the TCM (Hagger et al., 2003). Overall, the results were consistent with our hypotheses. Our results revealed a sequence that started with perceived autonomy support from the activity leader and ended with enhanced motivation towards school one year later, through autonomous motivation towards ECAs and school during the same school year.

Perceptions of Autonomy Support and Motivation for the Activity and for School

The positive predictive links connecting perceived autonomy support from the activity leader to both activity-based intrinsic and identified regulations are consistent with past research (Gagné et al., 2003; Gillet et al., 2010, 2012; Pelletier et al., 2001). The more students perceived autonomy support from their activity leader, the more they reported intrinsic and identified regulations towards their activity. Yet, perceived autonomy support from the activity leader was

also associated with school-based identified regulation during the same school year (both directly and indirectly through activity-based identified regulation), although to a lesser degree. Consequently, the more students felt that their leader provided them with choices in the activity, encouraged them to ask questions, and listened to what they would like to do, the more they perceived that school could help them achieve their personal goals. On the one hand, these results suggest that perceived autonomy support from the activity leader may be "contagious" from one context to another, and not necessarily domain-specific, at least with respect to identified regulation. On the other hand, this may have to do with the similarities between the educational and ECA contexts, as highlighted in the introduction. Since the activities were school-based, the activity leaders could also be one of the students' teachers during the school day. Some studies in the motivation field have provided support for the contagion phenomenon described above. For example, a research study showed that simply observing a target person's motivational orientation produces a higher level of motivation for the person who observed this person (Friedman, Deci, Elliot, Moller, & Aarts, 2010). Perceived support from the activity leader could have an influence also through another process involving peers: if students with the same activity leader also interact with the same group of peers within the school context, the leader's actions in the ECA context could spread to the school context through the peers. For instance, peers could use autonomy-supportive behaviors with each other, which could directly influence their motivation to attend school.

Generalization Effects During the Same School Year

Our results provide further support for the generalization effects of autonomous motivation from the ECA context to the school context during the same school year. This is consistent with the HMIEM (Vallerand, 1997) and the TCM (Hagger et al., 2003). Students from disadvantaged neighborhoods who experience intrinsic and identified regulations in a playful and

voluntary context in the same building as their everyday school experiences seemed to enjoy learning and going to school more. As underlined by Guay, Chanal, Ratelle, Marsh, Larose, and Boivin (2010), fostering autonomous motivation is likely to help students take ownership of their actions. This may foster self-regulated participation and persistence in educational activities. Ultimately, this may promote their school success and optimal overall functioning (Vansteenkiste & Ryan, 2013).

Moreover, what this study adds to previous research is that generalization effects are likely to operate in a sequence. This sequence starts with perceived autonomy support from the activity leader and ends with enhanced motivation towards school one year later, through enhanced activity-based and school-based autonomous motivation during the same school year. In addition, this study suggests that, similarly to perceived autonomy support, generalization effects may not be domain-specific. The TCM (Hagger et al., 2003) focuses on two very similar activities, namely physical education in the school context and physical activity outside of school. This may facilitate the generalization effects from one context to the other. Our results suggest that this principle could be extended to ECAs that are not closely related in content to school-based learning activities, but that are similar in other ways (i.e., they are supervised by an adult who could be a teacher, are experienced with a group of familiar peers who could be classmates, and are focused on skill building). Yet, before drawing strong conclusions about the issue of domain specificity, these results will need to be replicated in future studies. In addition, the type of activities in which students are involved should be examined as a moderator, not only as a control variable, as was done in this study.

Study Limitations

This study is not without limitations, and its findings should be interpreted accordingly. First, all measures were self-reported. This common source of measurement may have inflated

the covariance between the variables. One way to overcome this bias would be to ask activity leaders to report on their autonomy-supportive behaviors. Second, the sample was rather small, and the participants came from schools located only in disadvantaged neighborhoods. This may limit the generalizability of the findings. However, from an intervention perspective, these are the students who usually receive special attention from social agents and who are targeted in prevention/intervention programs. Third, among the three basic psychological needs of the SDT, only the need for autonomy was assessed. Yet, the need for relatedness, for instance, can be satisfied within ECAs. The satisfaction of this need may also have potential generalization effects from the ECA context to the school context. This should be further examined in future studies. Along the same lines, intrinsic and identified regulations were assessed for only one activity per student, selected by the students as their most important. Yet, perhaps some students were involved in more than one activity and may have had different motivation experiences in other activity contexts. Consequently, we can assume that the generalized effect of motivation held only for activities reported as important for students. Finally, because of the sample size, no moderators were tested. Even though the type of activities and participation intensity were included as controls in the analyses, we still do not know whether the results would be stronger for academic-oriented activities and for students who spend more time in their ECA. Such moderators should be investigated in future research.

Implications for Research, Theory, and Practice

This research highlights the need to better understand which of the students' ECA experiences could make a difference in their school life. In this study, we investigated motivational processes, but other processes—such as developing a sense of school belonging—may be at play. A sense of belonging could be enhanced in the context of an activity and then generalized to the broader school context. Another step for future research is to verify whether

students with high levels of motivation are more likely to stay in school. By doing so, we could learn more about the processes that explain why students who participate in ECAs are likely to stay in school. Concerning theoretical implications, our results support the idea of generalization effects from a leisure to an educational context during the same school year. Motivation can be transferred not only from the educational to the leisure context, as proposed by the TCM (Hagger et al., 2003), but also in the reverse direction. What this study adds to the TCM is that these generalization effects could work in a sequence involving "time" mediating mechanisms. Finally, concerning practical implications, these results suggest that offering motivational training to activity leaders who work in schools located in disadvantaged neighborhoods could be an effective strategy to promote motivation at school. By promoting autonomous motivation towards activities in an ECA context, activity leaders may be able to foster autonomous motivation towards similar activities in the formal school context. In the long run, this could make a positive difference in students' school life. Students are at risk of dropping out in part because of their lack of motivation. Bringing these students to join an ECA that allows them to fulfill their interests could motivate them to attend school every morning.

Conclusion

Learning more about how we could promote school motivation among high school students from disadvantaged neighborhoods was an underlying goal of this study. Instead of investigating what was happening in the classroom, we decided to examine the potential plus-value of ECAs. Overall, we found that when these students are involved in ECAs, the levels of autonomy support from their activity leader could boost their later motivation, in both the ECA and the school contexts.

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Table 1

Descriptive Statistics (n = 276)

Latent factors and indicators	Sample size	M	SD	S/K	Min/Max	Factor loadings	Uniquenesses
T1-Support from the leader							
Sout1a	273	5.52	1.47	-1.14/1.14	1/7	.85	.28
Sout2a	272	5.53	1.51	-1.18/1.05	1/7	.85	.28
Sout3a	273	5.81	1.36	-1.41/2.01	1/7	.86	.26
Sout4a	273	5.18	1.74	-0.91/-0.02	1/7	.79	.38
Sout5a	273	5.47	1.59	-1.15/0.77	1/7	.88	.22
Sout6a	273	5.50	1.56	-1.19/0.96	1/7	.88	.22
T1-Intrinsic regulation in ECAs							
Mic1a	275	5.98	1.36	-1.63/2.63	1/7	.63	.61
Mic2a	276	4.75	1.95	-0.54/-0.79	1/7	.70	.51
Mic3a	276	5.72	1.59	-1.23/0.79	1/7	.68	.54
Mic4a	275	4.57	2.01	-0.43/-1.01	1/7	.38	.86
T1-Identified regulation in ECAs							
Iden1a	275	5.67	1.60	-1.37/1.38	1/7	.66	.57
Iden2a	276	4.21	2.13	-0.19/-1.29	1/7	.63	.60
Iden3a	276	4.99	1.91	-0.76/-0.46	1/7	.74	.45
Iden4a	276	5.03	1.81	-0.61/-0.69	1/7	.77	.41
T1-Intrinsic regulation in school							
Mic1	276	3.91	0.94	-0.69/0.16	1/5	.77	.40
Mic2	276	3.83	0.98	-0.69/0.23	1/5	.84	.30
Mic3	274	3.88	1.02	-0.82/0.29	1/5	.76	.43
Mic4	275	3.98	1.00	-0.91/0.36	1/5	.82	.33
T1-Identified regulation in school							
Iden1	276	4.46	0.78	-1.71/3.31	1/5	.66	.55
Iden2	275	4.70	0.60	-2.38/7.20	1/5	.53	.72
Iden3	274	4.40	0.87	-1.82/3.82	1/5	.72	.50
Iden4	274	4.11	0.97	-1.20/1.39	1/5	.64	.60
T2-Intrinsic regulation in school							
Bmic1	173	3.92	0.96	-0.77/0.11	1/5	.92	.15
Bmic2	173	3.83	1.00	-0.71/-0.06	1/5	.91	.17
Bmic3	174	3.95	0.97	-0.80/0.23	1/5	.77	.41
Bmic4	174	4.07	0.90	-1.01/0.95	1/5	.85	.27
T2-Identified regulation in school							
Biden1	173	4.51	0.68	-1.16/0.55	2/5	.75	.42
Biden2	174	4.78	0.47	-2.04/3.48	3/5	.65	.55
Biden3	174	4.47	0.79	-1.81/3.93	1/5	.71	.50
Biden4	174	4.20	0.86	-0.94/0.57	1/5	.61	.65

Note. M = Mean, SD = Standard Deviation, S = Skewness, K = Kurtosis, Min = Minimum, Max = Maximum.

Table 2

Correlations Between the Latent Variables from the CFA

	1	2	3	4	5	6	7
1. Leader autonomy support at T1	-						
2. Activity-based INT at T1	.52***	-					
3. Activity-based IDE at T1	.54***	.75***	-				
4. School-based INT at T1	.29***	.30**	.48***	-			
5. School-based IDE at T1	.36***	.32***	.47***	.67***	-		
6. School-based INT at T2	.22*	.26**	.40***	.70***	.45***	-	
7. School-based IDE at T2	.16	.15	.14	.28**	.47**	.50***	-

Note. INT = intrinsic regulation, IDE = identified regulation.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3

Path Coefficients (see Figure 1)

Effects	Beta	SE	Z	*p*	95%CI
From perceived autonomy support to activity-based intrinsic regulation (a_1)	.53***	.065	8.09	.000	.38, .66
From perceived autonomy support to school-based intrinsic regulation – T1 (a_2)	.10	.101	1.03	.302	-.17, .30
From activity-based intrinsic regulation to school-based intrinsic regulation – T1 (d_{21})	.35*	.138	2.53	.011	.08, .68
From activity-based intrinsic regulation to school-based intrinsic regulation at school – T2 (b_1)	.09	.095	0.94	.346	-.10, .32
From school-based intrinsic regulation – T1 to school-based intrinsic regulation – T2 (b_2)	.68***	.076	8.94	.000	.51, .82
From perceived autonomy support to school-based intrinsic regulation – T2 (c'_1)	-.02	.092	-0.18	.854	-.23, .18
From perceived autonomy support to activity-based identified regulation (a_3)	.53***	.063	8.31	.000	.39, .64
From perceived autonomy support to school-based identified regulation – T1 (a_4)	.22**	.083	2.64	.008	.05, .40
From activity-based identified regulation to school-based identified regulation – T1 (d_{43})	.28**	.101	2.74	.006	.07, .48
From activity-based identified regulation to school-based identified regulation – T2 (b_3)	-.09	.120	-0.76	.446	-.33, .15
From school-based identified regulation – T1 to school-based identified regulation – T2 (b_4)	.50***	.134	3.73	.000	.18, .77
From perceived autonomy support to school-based identified regulation – T2 (c'_2)	.05	.098	.515	.607	-.18, .25

Note. CI = confidence intervals. Confidence intervals were estimated with Maximum Likelihood and not MLR because bootstrapping is not an option when using MLR in Mplus.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4

Total and Indirect Effects (see Figure 1)

Effects	Beta	SE	Z	*p*	95%CI
1. From perceived adult support to school-based intrinsic regulation – T1					
Total ($a_2 + a_1d_{21}$)	.29***	.066	4.38	.000	.14, .41
Specific indirect (by activity-based intrinsic regulation; a_1d_{21})	.18*	.082	2.24	.025	.04, .45
2. From perceived adult support to school-based identified regulation – T1					
Total ($a_4 + a_3d_{43}$)	.37***	.077	4.77	.000	.21, .51
Specific indirect (by activity-based identified regulation; a_3d_{43})	.15*	.058	2.50	.012	.04, .28
3. From activity-based intrinsic regulation to school-based intrinsic regulation – T2					
Total ($b_1 + d_{21}b_2$)	.33*	.152	2.14	.032	.01, .65
Specific indirect (by school-based intrinsic regulation – T1; $d_{21}b_2$)	.24*	.093	2.56	.011	.07, .47
4. From activity-based identified regulation to school-based identified regulation – T2					
Total ($b_3 + d_{43}b_4$)	.05	.122	0.38	.706	-.22, .29
Specific indirect (by school-based identified regulation – T1; $d_{43}b_4$)	.14*	.064	2.30	.022	.03, .30

Note. CI = confidence intervals. Confidence intervals were estimated with Maximum Likelihood and not MLR because bootstrapping is not an option when using MLR in Mplus.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4 (*continued*)

Effects	Beta	SE	Z	*p*	95%CI
5. From perceived adult support to school-based intrinsic regulation – T2					
Total ($c'_1 + a_1b_1 + a_2b_2 + a_1d_{21}b_2$)	.23**	.085	2.66	.008	.04, .39
Total indirect ($a_1b_1 + a_2b_2 + a_1d_{21}b_2$)	.24***	.062	3.91	.000	.09, .38
Specific indirect (by activity-based intrinsic regulation; a_1b_1)	.05	.051	.925	.355	-.05, .21
Specific indirect (by school-based intrinsic regulation – T1; a_2b_2)	.07	.070	1.01	.314	-.10, .21
Serial (by activity-based intrinsic regulation and school-based intrinsic regulation– T1; $a_1d_{21}b_2$)	.13*	.054	2.30	.022	.03, .29
6. From perceived adult support to school-based identified regulation – T2					
Total ($c'_1 + a_3b_3 + a_4b_4 + a_3d_{43}b_4$)	.18	.090	2.05	.041	-.00, .36
Total indirect ($a_3b_3 + a_4b_4 + a_3d_{43}b_4$)	.13	.069	1.94	.053	-.02, .29
Specific indirect (by activity-based identified regulation; a_3b_3)	-.05	.062	-0.77	.440	-.18, .08
Specific indirect (by school-based identified regulation – T1; a_4b_4)	.11*	.049	2.22	.026	.03, .24
Serial (by activity-based identified regulation and school-based identified regulation – T1; $a_3d_{43}b_4$)	.07*	.035	2.06	.028	.02, .17

Note. CI = confidence intervals. Confidence intervals were estimated with Maximum Likelihood and not MLR because bootstrapping is not an option when using MLR in Mplus.
* $p < .05$, ** $p < .01$, *** $p < .001$.

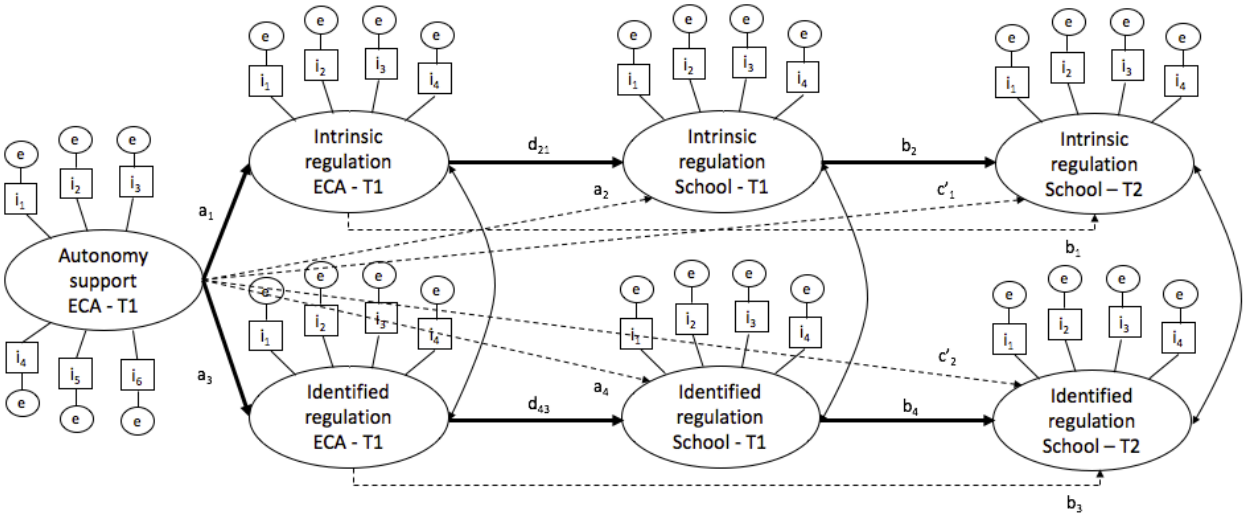

Figure 1. The hypothesized model. Even though they do not are presented in the figure, correlated uniquenesses between the same indicators assessed at T1 and T2 were taken into account for both indicators of school-based motivation. Activity type (school clubs vs. others) and participation intensity were also included as control variables in the model.