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Not Academic Enough? Enjoyment of Physical Education and the Arts and School Engagement in Early and Middle Adolescence

¿Suficientemente académico? Disfrute de la Educación Física y las Artes e implicación del estudiante con la escuela en la adolescencia temprana y media

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Abstract. School engagement during adolescence is an important personal asset for youth development. While multiple factors contribute to student engagement at school, research on the role of curricular factors is scarce. Based on a secondary analysis of data from Cycle 3 of the National Longitudinal Survey of Children and Youth, this study examined the associations of Canadian students' enjoyment of arts education, language arts, mathematics, physical education, and science with their engagement at school during early and middle adolescence, accounting for relevant demographic, family, peer, school, and community factors. All things considered, high levels of enjoyment of physical education and arts education were among the top factors making a contribution to school engagement in both periods of adolescence, and enjoyment of physical education was actually the strongest contributor to school engagement in early adolescence. The findings suggest that curricular factors, and in particular the quality of students' experiences in physical education and arts education, may be more important than previously recognized in terms of understanding and promoting school engagement in early and middle adolescence. Specifically, the findings provide initial evidence that a positive experience in physical education and arts education can contribute to student engagement and valuing of school. In addition, the findings provide further support for the role of participation in extracurricular activities and after school programs in fostering a sense of connectedness to and endorsement of school values and outcomes during the developmental periods considered.
Keywords: School engagement, curriculum, physical education, arts education, extracurricular activities.

Resumen. La implicación con la escuela durante la adolescencia es un importante activo personal para el desarrollo humano. Sin embargo, la investigación sobre el rol de factores curriculares es escasa. A partir de un análisis secundario de datos del Ciclo 3 de la Encuesta nacional del desarrollo de los niños y los jóvenes, este estudio examina las asociaciones del disfrute de las Artes, las Lenguas, las Matemáticas, la Educación Física y las Ciencias con la implicación escolar en estudiantes canadienses durante la adolescencia temprana y media, teniendo en cuenta factores demográficos, familiares, sociales, escolares y comunitarios relevantes. Niveles altos de disfrute de la Educación Física y de las Artes fueron dos de los factores que más contribuyeron en este estudio a la implicación escolar durante la adolescencia temprana y media, mientras que el disfrute de la Educación Física se reveló específicamente como el factor más importante en la adolescencia temprana. Factores curriculares, y en particular la calidad de la experiencia de los alumnos en las asignaturas de Educación Física y de Artes, pueden ser más importantes que lo pensado anteriormente para comprender y promover el compromiso con la escuela durante la adolescencia temprana y media. Los resultados proporcionan evidencias iniciales de que una experiencia positiva en las asignaturas de Educación Física y de Artes puede contribuir a un mayor compromiso con la escuela y a la identificacion con la misma por parte de los alumnos y refuerzan el rol de la participación en actividades extracurriculares y programas fuera del horario escolar.
Palabras clave: Compromiso escolar, currículo, Educación Física, Artes, actividades extracurriculares.

Introduction

The notion of school engagement has become prominent in the education and youth development literatures because of its implications for academic performance, school dropout, youth health, and positive youth development (e.g., Archambault, Janosz, Fallu, & Pagani, 2009; Lerner, Lerner, Bowers, & Geldhof, 2015; Li & Lerner, 2011; Willms, 2003). School engagement is usually conceptualized as a multidimensional phenomenon comprising behavioral components pertaining to students' participation in class-related and extracurricular activities, and psychological (affective, cognitive) components pertaining to students' identification with and endorsement of school values and outcomes (Archambault et al., 2009; Audas & Willms, 2001; Christenson, Reschly, & Wylie, 2012; Fredricks, Blumenfeld, Friedel, & Paris, 2005; Fredricks, Blumenfeld, & Paris, 2004; Ros, 2009). Specifically, school engagement is expressed in active student participation, not only in behavioural terms, such as in participation in curricular and extracurricular activities, but also in emotional and cognitive terms, such as in students' sense of connection with their school, and an interest in learning school-related material (Stefanson, Gestsdottir, Birgisdottir, & Lerner, 2018). School engagement encompasses specific self-regulations in a key developmental context and is an important personal asset or strength for positive youth development (Lerner et al., 2015). Furthermore, school engagement is considered a process that evolves over the course of the school experience (Archambault et al., 2009).

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Cross-sectional and longitudinal associations between school engagement and academic and nonacademic outcomes have been reported in the literature. A literature review conducted by the Canadian Institute for Health Information (CIHI) found that feeling connected to or engaged with one's school is associated with greater emotional well-being among youth and may also be a protective factor against suicidal behavior and engagement in both violent and risk sexual behaviors (CIHI, 2005). Similarly, U.S. youth who experienced more positive trajectories of school engagement tended to have better school grades, less depression, and were less likely to be involved in delinquency and drug abuse (Li & Lerner, 2011; Li et al., 2011). Furthermore, school engagement has been associated with lower early high school dropout (Archambault et al., 2009). In line with the previous findings, there is evidence that active engagement in learning at school can serve as a resource for adolescent identity formation (Erentaitë, Vosylis, Gabrialavièiûtë, & Raiþienë, 2018),

Individual and contextual antecedents of school engagement have also been reported. For example, in a representative survey of U.S. adolescents, higher levels of student connectedness to school were associated with learning climates encouraging students to make decisions, smaller schools where students feel that teachers care about them, disciplinary policies perceived as not too strict, and participation in extracurricular activities (McNeely, Nonnemaker, & Blum, 2002). Similarly, studies suggest that participation in after school programs and extracurricular activities foster student engagement in learning (Hee Im, Hugues, Cao, & Kwok, 2016; Harvard Family Project, 2008). Gender differences in school engagement have also been noted, with boys being typically less engaged in school-related matters than girls (CIHI, 2005; Fullarton, 2002). More recently, Owen et al. (2016) have

reviewed evidence indicating that increasing physical activity during school hours has the potential to improve school engagement in young people. In addition, perfectionism has been linked to school engagement in adolescence (Damian, Stoeber, Negru-Subtirica, & Bãban, 2017), while positive peer relationships have been found to improve school engagement in at-risk adolescents (Moses & Villodas, 2017), and characteristics related to demographics, school functioning, children, and families predicted levels of school engagement of children in foster care (Goemans, van Geel, Wilderjans, van Ginkel, & Vedder, 2018).

While the literature reviewed provides support for the notion that school engagement is a multidimensional phenomenon that is influenced by multiple factors at different levels, surprisingly little is known about the role of school-based factors of a curricular nature. Some evidence, however, indicates that how well high school students perform in and enjoy mathematics can affect the academic paths they select, as well as both their education and career goals (Bussière, Cartwright, & Knighton, 2004). Enjoyment of a particular academic subject is considered an affective marker of engagement in the subject and of the quality of the student experience (Bohnert, Fredricks, & Randall, 2010). The importance of markers of the quality of the student experience with the school curriculum was further illustrated in a study of 643 Australian elementary and secondary school students, conducted over the course of two academic years to investigate the role of arts participation (dance, drama, music, and visual arts) in students' academic and nonacademic outcomes (Martin et al., 2013). Greater engagement in the arts, in- and/or out-of-school, which reflects the quality of young people's involvement beyond mere participation, was the most dominant and consistent predictor of nonacademic and academic outcomes. Academic outcomes included motivation, educational aspirations, class participation, homework completion, and enjoyment of school, while nonacademic outcomes reflected such wellbeing factors as self-esteem, life satisfaction, and a sense of meaning or purpose. Furthermore, more frequent participation in arts instruction during school hours was associated with higher levels of academic resilience (e.g., tolerance to stress).

Frequent curricular participation in the arts has also been found to increase academic and civic outcomes as reported in a longitudinal study of US middle school students (Catterall, Dumais, & Hampden-Thompson, 2012). This finding was especially true for those from a low socioeconomic status background. Catterall, Chapleau, and Iwanaga (1999) also reported that of the 25,000 middle and high school students surveyed in 1999, gains in student achievement for arts participants were more pronounced over time. In addition to involvement in the arts, teaching through the arts has been seen to increase student engagement as reported by the teachers (Cawthon, Dawson, & Ihom, 2011) as well as cognitive, social and emotional skills (Ingram & Meeth, 2007; Smithrim & Upitis, 2005).

In the specific case of music and academic achievement, evidence reviewed by Hallam (2016) suggests a positive relationship between active music making and general educational attainment. In her survey of literature related to the effect of music on educational motivation and re-engagement, Hallam concludes that evidence exists that musical activities can be effective in re-engaging disaffected students. She further claims that the study of music «offers the potential for enhanced self-efficacy, self-esteem and self-concept, improvements in mood, reduced anger, increased motivation and improved behavior» (2016, p. 10).

Similar to arts participation, the effects of students' experience in physical education on school engagement may be particularly worth investigating given a long standing tradition in this learning area of fostering values, attitudes and behaviors that could bring about a sense of belonging to school and desire to participate in both school and after school activities. For example, well-established physical education instructional models such as the personal and social responsibility model (e.g., Hellison, 2011) and the sport education model (e.g., Siedentop, Hastie, & Van der Mars, 2004) aim to promote a sense of responsibility towards the self and others during the learning process and a sense of affiliation and belonging (see also Hellison & Walsh, 2002). Furthermore, a number of studies have investigated the ways in which autonomous learning can be fostered in physical education (Mitchell, Gray, & Inchley, 2015; Mouratidis, Barkoukis, & Sorbatzoudis, 2015). Results indicate that when the teacher creates learning environments that satisfy the students' need to feel competent and involved in decisions regarding their own learning, then student engagement and learning are enhanced. Perhaps more importantly, this is also related to positive affective outcomes and can increase students' self-determined motivation towards school (Vallerand, Fortier, & Guay, 1997).

Students enjoy physical education when it is challenging, when it enhances their learning and when it provides opportunities to make decisions about their own learning (Beni, Fletcher & Chróinín, 2016). Such learning environments are consistent with student-centred instructional models such as Sport Education (Siedentop et al., 2004), Teaching for Personal and Social Responsibility (Hellison, 2011), and Fitness Education (e.g., Corbin & Lindsey, 2007). In fact, research that has examined student-centred instructional models such as Sport Education has found that students perceive their learning experiences to be more enjoyable because they improve their skill, tactical and game knowledge (Hastie, 2012) and they feel like they have ownership and control over their curriculum (Kinchin, 2006; Hastie, Martínez, & Calderón, 2011). We can speculate, therefore, that enjoyment in physical education is associated with meaningful learning and effective teaching that satisfies the students' need to feel competent and autonomous, which in turn can increase students' autonomous motivation towards school (Vallerand et al. 1997).

Although the previous considerations and, in particular, findings from the above-mentioned study by Martin and collaborators (2013) concerning arts participation in Australia draw attention to the importance of curricular factors when examining outcomes related to school engagement, there is a paucity of school engagement research that includes such factors in the study design. Notably absent are studies that examine simultaneously students' experience in a variety of academic subjects, controlling for their shared variance to establish unique effects attributable to each of them in terms of young people's school engagement, and taking into account covariates at different levels in the ecology of students' lives. Given the importance of school engagement to a number of important developmental and youth health outcomes, and the lack of research investigating the joint role of curricular factors, the aim of this study was to examine the associations of students' enjoyment of arts education, language arts, mathematics, physical education, and science with school engagement during early and middle adolescence, while accounting for relevant individual, family, peer, school, and community factors. Of particular interest in this study was the specific contribution of enjoyment of arts education and physical education to students' engagement with the school.

Methods

Data Sources and Participants

We drew on a secondary analysis (November 2017) of data from the National Longitudinal Survey of Children and Youth (NLSCY Cycle 3, 1998-1999). The National Longitudinal Survey of Children and Youth (NLSCY) is a long-term study of Canadian children that follows their development and well-being from birth to early adulthood. The NLSCY began in 1994 and was jointly conducted by Statistics Canada and Human Resources and Skills Development Canada. The study was designed to collect information about factors influencing a child's social, emotional and behavioral development and to monitor the impact of these factors on the child's development over time. The survey covers a comprehensive range of topics including the health of children, information on their physical development, learning and behavior as well as data on their social environment (family, friends, schools and communities). More information on the NLSCY can be found at https://crdcn.org/datasets/nlscy-national-longitudinal-survey-children-and-youth.

Cycle 3 of the NLSCY is the most recent cycle whose data are accessible through the Data Liberation Initiative (DLI) as part of the Public Use Microdata Files (PUMFS) collection made available by Statistics Canada. As such, these data provided a convenient opportunity to conduct an initial exploration of the associations among the variables of interest in a large, representative, sample. For the purposes of this study, we used data from 1740 participants aged 12-15 years with valid responses to the variables examined in this study.

Measures

Main variables

School engagement. Based on previous analyses using data from the NLSCY (CIHI, 2005), we operationalized school engagement as a composite variable reflecting cognitive and behavioral dimensions of school engagement as manifested in the degree of importance a young person places on doing well academically, learning new things, making friends in school, participating in extracurricular activities, getting involved with student council or similar groups, being on time for class, and expressing their opinion in class. Participants recorded their responses on a scale ranging from 0 = 'not important at all' to 3 = 'very important.' Consistent with previous analyses using the same composite variable (CIHI, 2005), continuous scores (range 0 to 21) were recoded into the categories 'medium-low' (0-13) and 'high' (14-21), with high scores indicating a high level of school engagement. Combining the medium and low categories in this and other variables in the present study helped offset the high variability ensuing from small size for the low category in some NLSCY variables (see CIHI, 2005). The Cronbach's alpha internal consistency reliability coefficient for the school engagement scale in this study was 0.72 and 0.74, respectively, for the 12-13 year olds and the 14-15 year olds.

Enjoyment of arts education, language arts, mathematic, physical education, and science. Enjoyment of the academic subjects considered in this study was assessed by means of the item: 'How do you like the following subjects—Math, Science, English, French, Gym/Phys. Ed., Fine Arts (music, drama)?', each rated on a four-point scale with the following response options: 'I hate it,' 'I don't like it very much,' 'I like it a bit,' I like it a lot.' Using a similar scoring strategy as for school engagement, and consistent with previous research using the enjoyment of physical education variable from the NLSCY (Bengoechea et al., 2010), participants who chose the option 'I like it a lot' for a given academic subject were placed in the 'high' enjoyment category for that particular subject, whereas participants who chose the remaining options were placed in the 'medium-low' enjoyment category for the corresponding subject.

Covariates

In line with previous work contending that academic performance and school engagement are complex phenomena influenced by variables at multiple levels (e.g., Audas & Willms, 2002; CIHI, 2005, Fredricks et al., 2004, 2005; Fullarton, 2002; Marques, Gómez, Martins, Catunda, & Samento, 2017; Willms, 2003), we included in the analyses a number of theoretically relevant covariates. Sociodemographic background covariates at the individual level included gender and socioeconomic status, while parental encouragement and parental pressure to do well in school, and connection to peers (e.g., having many friends, getting easily along with others the same age) represented the family and peer settings, respectively. At the school level, covariates included in the models were attitude toward school, school spirit (only available for the 14-15 years), perceived academic achievement, feelings of exclusion, and volunteering in school activities (only available for the 12-13 years). In addition, we assessed perceptions of teacher fairness and teacher availability outside of class (the latter only for the 14-15 years). Furthermore, we assessed participation in a variety of school-based extracurricular programs and activities. Lastly, at the community level the covariates included in the models were participation in a variety of after school programs and activities and volunteering in community activities. While the questions about participation in activities for the 14-15 year olds made it possible to differentiate between school-based and out-of-school activities, similar questions for the 12-13 year olds were framed more generically and did not allow for such differentiation. Detailed information about all covariates examined in this study, scoring strategies, and non-response rates is provided in table 1.

Data Analysis

As part of a secondary analysis of NLSCY Cycle 3 data, we first calculated descriptive statistics to characterize the study sample in terms of the variables of interest. Subsequently, we used logistic regression to examine the association between enjoyment of arts education, language arts (English, French), mathematics, physical education, and science with school engagement while adjusting for individual-, family-, peer-, school-, and community-level covariates. Because not all NLSCY variables of interest in this study were available across the 12-15 years age range or questions were worded differently for the 12-13 and the 14-15 year olds (e.g., questions about participation in activities), we conducted the analyses separately for each age group. Specifically, for each of the two age groups considered, we regressed simultaneously school engagement on the individual, family, peer, school and community variables, entered in that order, and calculated adjusted odd ratios and corresponding 95% confidence intervals. For the sake of interpretation, we also converted odd ratios into probabilities according to the formula: odd ratio / (odd ratio+1).

School engagement is not strictly an individual phenomenon and the suitability of multilevel modeling using school as clustering variable has been suggested for investigating this phenomenon (e.g., Audas & Willms, 2001, Fullarton, 2002; Willms, 2003). However, such modeling is not feasible with NLSCY data as schools are not included in the stratification strategy to obtain a representative sample. On the other hand, geographical region of residence is part of such strategy and curricular guidelines in Canada vary across provinces. To account for this, we tested an unconditional random intercept model using geographical region of residence (Atlantic Canada, Quebec, Ontario, Prairies, British Columbia) as clustering variable. Since the model yielded non-significant effects on school engagement for both the younger (p = 0.684) and older (p = 0.249) participant groups, we did not deem necessary to model region of residence as a random effect to control for potential correlation in the responses from participants in the same geographical location.

Results

Out of a potential pool of 1849 participants aged 12-13 years, and 1857 participants aged 14-15 years, complete data for 986 participants (53.3%) aged 12-13 years and for 754 participants (40.6%) aged 14-15 years were available and were included in this study. A description of characteristics of the sample according to the variables examined in this study is presented in table 2. Overall, students in both age groups reported high levels of school engagement. They also reported liking physical education and arts education more than all the other academic subjects examined in this study. While all variables entered in the two separate logistic regression models were statistically significant at the $p < 0.05$ level, several variables reached prominence in terms of their association with school engagement (table 3).

Early Adolescence

In early adolescence, accounting for multiple factors, high levels of enjoyment of physical education emerged as the most dominant factor in the regression model, such that students in the high enjoyment category were almost 2.5 times more likely (71% probability) to report high levels of school engagement than students in the middle-low enjoyment category. Similarly, parental encouragement to do well in school, taking part in clubs or groups (e.g., Girl Guides or Boy Scouts, community or religious groups), volunteering doing school activities (e.g., school patrol),

Table 1
Covariates included in the study

Variable	Response Categories	Age Group	Score Range	Cronbach's alpha	Non-Response Rate
Gender. Variable based on membership in the original study cohorts.	-male -female	12-15 years	N/A	N/A	13.8%
Socioeconomic status. A NLSCY derived variable that considers the total household income, the level of education of the parents, and the prestige of the parents' occupation for computing the five status categories.	Depend on every factor (i.e., total household income, the level of education of the parents, and the prestige of the parents' occupation) from which the derived variable was formed.	12-15 years	-lowest quintile -lower-middle quintile -middle quintile -upper-middle quintile -highest quintile	N/A	13.8%
Parental encouragement. Variable based on the following NLSCY item: My parents encourage me to do well at school.	-never (0) -rarely (1) -some of the time (2) -most of the time (3) -all the time (4)	12-15 years	-medium-low (0 to 2) -high (3 to 4)	N/A	15.5%
Parental pressure. Variable based on the following NLSCY item: My parents expect too much of me at school.	-never (0) -rarely (1) -some of the time (2) -most of the time (3) -all the time (4)	12-15 years	-low (0 to 1) -medium (2) -high (3 to 4)	N/A	16.9%
Peer connectedness. Derived score based on the following NLSCY items: I have many friends; I get along easily with others my age; others my age want me to be their friend; most others my age like me.	-false (0) -mostly false (1) -sometimes true/sometimes false (2) -mostly true (3) -true (4)	12-15 years	-medium-low (0 to 11) -high (12 to 16)	0.74 (12-13 years) / 0.82 (14-15 years)	19.6%
Attitude toward school. Variable based on the following NLSCY item: How do you feel about school?	-I hate school (0) -I don't like school very much (1) -I like school a bit (2) -I like school quite a bit (3) -I like school very much (4)	12-15 years	-poor (0 to 1) -average (2) -good (3 to 4)	N/A	14.6%
School spirit. Variable based on the following NLSCY item: How much school spirit does your school have?	-Very few students have a lot of school spirit (0) - Some students have a lot of school spirit (1) - Most students have a lot of school spirit (2) - Almost all students have a lot of school spirit (3)	14-15 years	-Medium-low (0 to 1) -High (2 to 3)	N/A	9.4%
School achievement. Variable based on the following NLSCY item: How well do you think you are doing in your school work?	-very poorly (0) -poorly (1) -average (2) -well (3) -very well (4)	12-15 years	-medium-low (0 to 2) -high (3 to 4)	N/A	18.3%
School exclusion. Variable based on the following NLSCY item: I feel like an outsider (or left out of things) at my school.	-never (0) -rarely (1) -some of the time (2) -most of the time (3) -all the time (4)	12-15 years	-low (0 to 1) -medium-high (2 to 4)	N/A	16.2%
School Volunteering. Variable based on the following NLSCY item: In the past year (the last 12 months), have you helped without pay by doing activities at school (yearbook committee, school patrol, student council, etc.)	Mark if applicable	12-13 years	-No (0) -Yes (1)	N/A	12.8%
Teacher Fairness. Variable based on the following NLSCY item: In general, my teachers treat me fairly.	-never (0) -rarely (1) -some of the time (2) -most of the time (3) -all the time (4)	12-15 years	-medium-low (0 to 2) -high (3 to 4)	N/A	16.8%
Teacher availability outside of class. Variable based on the following NLSCY item: How often do you talk to a teacher outside of class?	-Almost never (0) -Less than once a month (1) -A few times a month (2) -Once a week (3) -A few times a week (4) -Everyday (5)	14-15 years	-low (0-1) -medium (2-3) -high (4-5)	N/A	10.7%
Participation in unorganized sport/physical activity. Variable based on the following NLSCY item: In the last 12 months, how often have you played sports or done physical activities WITHOUT a coach or an instructor (e.g. biking, skateboarding, etc.)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	12-13 years	-No (0 to 1) -Yes (2 to 3)	N/A	10.7%
Participation in organized sport/physical activity. Variable based on the following NLSCY item: In the last 12 months, how often have you played sports WITH a coach or instructor, other than in gym class? (swimming lessons, baseball, hockey, etc.)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	12-13 years	-No (0 to 1) -Yes (2 to 3)	N/A	10.9%
Participation in groups or lessons. Variable based on the following NLSCY item: In the last 12 months, how often have you taken part in dance, gymnastics, karate or other groups or lessons, other than in gym class?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	12-13 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.5%
Participation in arts-based extracurricular activities. Variable based on the following NLSCY item: In the last 12 months, how often have you taken part in art, drama or music groups, clubs or lessons, outside of class?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	12-13 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.3%
Participation in clubs or groups. Variable based on the following NLSCY item: In the last 12 months, how often have you taken part in clubs or groups such as Guides or Scouts, 4-H club, community, church or other religious groups?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	12-13 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.2%
Participation in unorganized school sport/physical activity. Variable based on the following NLSCY item: In the last 3 months, how often have you taken part in the following school-based activities (other than in class)? Played sports or done physical activities WITHOUT a coach or an instructor (e.g., softball during recess)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	10.8%
Participation in organized school sport/physical activity. Variable based on the following NLSCY item: In the last 3 months, how often have you taken part in the following school-based activities (other than in class)? Played sports WITH a coach or instructor, other than for gym class (e.g., school teams)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.2%
Participation in school-based groups or lessons. Variable based on the following NLSCY item: In the last 3 months, how often have you taken part in the following school-based activities (other than in class)? Taken part in dance, gymnastics, karate or other groups or lessons, other than in gym class?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.1%
Participation in school-based extracurricular arts. Variable based on the following NLSCY item: In the last 3 months, how often have you taken part in the following school-based activities (other than in class)? Taken part in art, drama or music groups, clubs or lessons, outside of class?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.0%
Participation in school-based clubs or groups. Variable based on the following NLSCY item: In the last 3 months, how often have you taken part in the following school-based activities (other than in class)? Taken part in a school club or group such as yearbook club, photography club or student council?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.5%
Participation in unorganized sport/physical activity outside of school. Variable based on the following NLSCY item: OUTSIDE OF SCHOOL, during the past 12 months, how often have you played sports or done physical activities WITHOUT a coach or an instructor (e.g. biking, skateboarding, etc.?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	10.7%
Participation in organized sport/physical activity outside of school. Variable based on the following NLSCY item: OUTSIDE OF SCHOOL, during the past 12 months, how often have you played sports WITH a coach or instructor (swimming lessons, baseball, hockey, etc.)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	10.9%
Participation in groups or lessons outside of school. Variable based on the following NLSCY item: OUTSIDE OF SCHOOL, during the past 12 months, how often have you taken part in dance, gymnastics, karate or other groups or lessons (always organized outside of school)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.1%
Participation in arts groups or lessons outside of school. Variable based on the following NLSCY item: OUTSIDE OF SCHOOL, during the past 12 months, how often have you taken part in art, drama or music groups, clubs or lessons (again outside of school)?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.4%
Participation in clubs or groups outside of school. Variable based on the following NLSCY item: OUTSIDE OF SCHOOL, during the past 12 months, how often have you taken part in clubs or groups such as Guides or Scouts, 4-H club, community, church or other religious groups?	-Never (0) -Less than once a week (1) -1 to 3 times a week (2) -4 or more times a week (3)	14-15 years	-No (0 to 1) -Yes (2 to 3)	N/A	11.2%
Community volunteering. Variable based on the following NLSCY item: In the past year (the last 12 months), have you helped without pay by helping in your community (hospital volunteering, etc.)	Mark if applicable	12-15 years	-No (0) -Yes (1)	N/A	24.9%

Table 2
Sample characteristics

Variable	% 12 -13 years	% 14-15 years
Gender		
-Female	50.1	50.2
-Male	49.9	49.8
Socioeconomic status		
-lowest quintile	14.3	13.2
-lower-middle quintile	22.9	23.3
-middle quintile	16.3	14.6
-upper-middle quintile	34.5	35.5
-highest quintile	12.0	13.4
Parental encouragement		
-medium-low	3.4	4.0
-high	96.6	96.0
Parental pressure		
-low	52.1	46.1
-medium	25.6	27.5
-high	22.3	26.4
Peer connectedness		
-medium-low	23.2	19.7
-high	76.8	80.3
School attitude		
-poor	17.5	20.8
-average	27.6	29.7
-good	54.9	49.5
School spirit		
-medium-low		36.5
-high		63.5
School achievement		
-medium-low	30.7	39.1
-high	69.3	60.9
School exclusion		
-low	82.5	77.1
-medium-high	17.5	22.9
School volunteering		
-No	61.3	
-Yes	38.7	
Teacher fairness		
-medium-low	13.8	15.6
-high	86.2	84.4
Teacher availability outside of class		
-low		36.6
-medium		26.6
-high		36.8
School engagement		
-medium-low	14.5	26.7
-high	85.5	73.3
Enjoyment of mathematics		
-medium-low	61.3	64.0
-high	38.7	36.0
Enjoyment of science		
-medium-low	61.5	65.9
-high	38.5	34.1
Enjoyment of English		
-medium-low	63.9	64.3
-high	36.1	35.7
Enjoyment of French		
-medium-low	71.7	76.0
-high	28.3	24.0
Enjoyment of physical education		
-medium-low	21.1	31.5
-high	78.9	68.5
Enjoyment of arts education		
-medium-low	33.6	38.7
-high	66.4	61.3
Participation in unorganized sport/physical activity		
-No	27.3	
-Yes	72.7	
Participation in organized sport/physical activity		
-No	33.7	
-Yes	66.3	
Participation in groups or lessons		
-No	60.4	
-Yes	39.6	
Participation in arts-based extracurricular activities		
-No	66.5	
-Yes	33.5	
Participation in clubs or groups		
-No	75.1	
-Yes	24.9	
Participation in unorganized school sport/physical activity		
-No		63.0
-Yes		37.0
Participation in organized school sport/physical activity		
-No		58.4
-Yes		41.6
Participation in school-based groups or lessons		
-No		74.2
-Yes		25.8
Participation in school-based extracurricular arts		
-No		73.4
-Yes		26.6
Participation in school-based clubs or groups		
-No		86.9
-Yes		13.1
Participation in unorganized sport/physical activity o/s school		
-No		35.0
-Yes		65.0
Participation in organized sport/physical activity o/s school		
-No		49.4
-Yes		50.6
Participation in groups or lessons o/s school		
-No		76.0
-Yes		24.0
Participation in arts groups or lessons o/s school		
-No		77.8
-Yes		22.8
Participation in clubs or groups o/s school		
-No		82.7
-Yes		17.3
Community volunteering		
-No	87. 2	84.2
-Yes	12.8	15.8

feeling strongly connected to peers, and having a positive attitude toward school, in that order, were associated with odd ratios of 2.0 (66% probability) or slightly below this value,. Finally, taking part in groups or lessons (e.g., dance, gymnastics, martial arts) other than in physical education class, reporting high levels of enjoyment of arts education, doing well in school, feeling treated fairly by teachers, female gender, and reporting high levels of enjoyment of language arts (English), respectively, were associated with odd ratios slightly above or below the value of 1.5 (60% probability). Conversely, frequent unrealistic parental expectations for student achievement and taking part in unorganized sport/physical activity (i.e., without a coach or an instructor, e.g., skateboarding) were associated with relatively small negative effects on school engagement (see table 3).

Middle Adolescence

As for middle adolescence, strong feelings of connection to peers, and taking part in *school-based* art, drama or music groups, clubs or lessons *outside of class* were the dominant factors in the regression model, with odd ratios greater than the value of 2.5 (71.4 % probability) in each case. These variables were followed closely by enjoyment of arts education and enjoyment of physical education, with students reporting high levels of enjoyment of these subjects being 2.4 (70.5% probability) and 2.3 (69.6% probability) times more likely, respectively, to report high levels of school engagement than their counterparts. Having a positive attitude toward school, taking part in a *school* club or group (e.g., yearbook club), and participating in clubs or groups *outside of school* (e.g., Guides or Scouts, community or religious groups) was also associated with school engagement as evidenced in odd ratios reaching or nearing the value of 2.0 (67% probability).

Both the students who took part in organized groups or lessons *outside of school* (e.g., dance, gymnastics, martial arts) and those who participated in *school-based* organized sport/physical activity had higher odds (1.75 and 1.73, or 63.6% and 63.4% probability, respectively) of reporting high levels of school engagement than students who did not take part in such activities. Finally, high levels of enjoyment of language arts (French), taking part in unorganized sport/physical activity *outside of school*, and high levels of enjoyment of science, followed by high levels of enjoyment of mathematics, talking often to a teacher outside of class, and receiving frequent parental encouragement to do well in school, were associated with odd ratios slightly above or near the value of 1.5 (60% probability).

A few variables, on the other hand, were negatively associated with

Table 3
Odd ratio estimates of the association between study variables and school engagement in early (12-13 years) and middle (14-15 years) adolescence

	12-13 years	N=986		14-15 years	N=754	
	AOR	95% CI		AOR	95% CI	
		Lower	Upper		Lower	Upper
Gender	1.35	1.32	1.38	1.24	1.22	1.27
Socio-economic status	1.05	1.05	1.06	0.95	0.94	0.96
Parental encouragement	2.15	2.06	2.24	1.40	1.33	1.46
Parental pressure	0.89	0.88	0.90	1.03	1.01	1.04
Peer connectedness	1.85	1.81	1.89	2.87	2.80	2.95
School attitude	1.79	1.77	1.82	2.04	2.02	2.07
School Spirit	-	-	-	1.30	1.28	1.33
School achievement	1.68	1.65	1.72	1.19	1.17	1.22
School exclusion	0.95	0.92	0.97	1.31	1.27	1.34
School volunteering	1.90	1.86	1.94	-	-	-
Teacher fairness	1.49	1.45	1.52	1.13	1.10	1.16
Teacher availability o/s class	-	-	-	1.41	1.40	1.43
Enjoyment of Mathematics	1.15	1.12	1.18	1.42	1.39	1.45
Enjoyment of Science	1.29	1.27	1.32	1.52	1.48	1.55
Enjoyment of English	1.33	1.29	1.36	0.73	0.71	0.74
Enjoyment of French	1.27	1.23	1.30	1.57	1.53	1.62
Enjoyment of Phys. Ed.	2.34	2.28	2.39	2.27	2.23	2.32
Enjoyment of Arts Ed.	1.60	1.57	1.64	2.44	2.39	2.49
Unorganized sport/PA	0.88	0.86	0.90	-	-	-
Organized sport/PA	1.26	1.24	1.29	-	-	-
Groups or lessons (e.g., dance)	1.74	1.70	1.79	-	-	-
Extracurricular arts-based activities	1.18	1.15	1.21	-	-	-
Clubs or groups (e.g., guides/scouts)	2.07	2.02	2.13	-	-	-
Unorganized school sport/PA	-	-	-	0.80	0.78	0.82
Organized school sport/PA	-	-	-	1.73	1.69	1.78
School-based groups or lessons	-	-	-	1.04	1.02	1.07
School-based extracurricular arts	-	-	-	2.70	2.63	2.78
School-based clubs or groups	-	-	-	2.02	1.94	2.09
Unorganized sport/PA o/s school	-	-	-	1.57	1.53	1.60
Organized sport/PA o/s school	-	-	-	1.30	1.27	1.33
Groups or lessons o/s school	-	-	-	1.75	1.70	1.81
Arts groups or lessons o/s school	-	-	-	0.66	0.64	0.68
Clubs or groups o/s school	-	-	-	1.93	1.87	2.00
Community volunteering	1.08	1.05	1.12	1.16	1.12	1.19

Notes. Abbreviations: AOR=adjusted odd ratio; CI=confidence intervals; PA=physical activity; o/s=outside. Dashes are used when NLSCY data are not available for the corresponding age group. Estimates are based on weighted data.

school engagement in middle adolescence. Notably, the odds of reporting high levels of school enjoyment were 34%, 27%, and 20% lower for students who were involved in art, drama or music groups, clubs or lessons *outside of school*, reported high levels of enjoyment of language arts (English), and took part in *school-based* unorganized sport/physical activity, respectively (see table 3).

Discussion

With a few exceptions, studies that include curricular factors when investigating influences on students' engagement with the school are notably absent from the literature. This study examined the associations of students' enjoyment of arts education, language arts, mathematics, physical education, and science with school engagement during early and middle adolescence, accounting for relevant demographic, family, peer, school, and community factors. Particular attention was paid to the specific contribution of enjoyment of arts education and physical education to students' engagement with the school. The study fills a gap in the literature on school engagement by addressing an important aspect of the quality of students' experience in a variety of academic subjects, controlling for their shared variance to establish unique effects attributable to each of them, and including relevant covariates at different levels.

According to expectations based on limited available evidence (Bussière, Cartwright, & Knighton, 2004; Martin et al., 2013), with the exception of English Arts in middle adolescence, high levels of enjoyment of the different academic subjects considered were associated with greater school engagement both in early and middle adolescence. In addition, reflecting also assumptions derived from the literature (e.g., Catterall et al., 2012; Corbin & Lindsay, 2007; Hellison, 2011; Hastie et al., 2011; Kinchin, 2006; Martin et al., 2013; Vallerand et al., 1997), the strongest associations between positive affective responses to curricular factors and school engagement were observed for physical education and arts education. In fact, when considering all the variables included in the analyses, high levels of enjoyment of these learning areas were among the top factors making a contribution to school engagement in both periods of adolescence, and enjoyment of physical education was actually the strongest contributor to school engagement in early adolescence.

Altogether, the findings indicate that curricular factors, and in particular students' experiences in physical education and arts education (e.g., music, drama), may be more important than previously recognized from the point of view of understanding school engagement during adolescence, conceptualized as the desire to be part of the school life and activities and to value school outcomes. School engagement, in turn, is a prominent construct in the education and youth development literatures because of its relationships with outcomes such as academic performance, school dropout and indicators of academic and personal health and well-being (Archambault et al., 2009; Audas & Willms, 2001; CIHI, 2005; Lerner et al., 2015; Wang & Holcombe, 2010). Given reports that students experience feelings of indifference and disaffection toward school (Fernández Villarino, González Valeiro, Toja Reboredo, & Carreiro da Costa, 2017), the findings of this study provide initial evidence that a positive experience in academic subjects such as physical education and arts education can have a favourable impact on adolescents' attitudes toward and valuing of school (see Fernández Villarino et al, 2017). At a time when different academic subjects have to compete for curriculum space and time (see, for example, Martin et al., 2013), the study's findings emphasize the importance of physical education and the arts in the secondary school curriculum.

Recent education legislation in the United States has placed physical education and the arts outside of the subject areas considered as 'core academic subjects'. This development sent a strong signal that the federal government considers physical education as a marginal subject, which lowers the value of this area in the eyes of state and local school authorities and decision-makers, and has implications in terms of allocation of time and resources (SHAPE America, 2015). Similar issues in Europe, Canada and Australia have prompted leading experts and professional associations to release position papers and documents that advocate for physical education as a unique and essential learning area focused on educational purposes and assert that all young people in schools are entitled to quality experiences in this area (Crum, 2017; Physical and Health Education Canada, 2017; The Australian Council for Health, Physical Education and Recreation, 2014). While the situation is not similar everywhere, and in countries such as Scotland there has been significant investment in physical education with an increase in teacher numbers and a policy mandate requiring all students to engage in two hours of physical education each week within the core learning area of 'health and wellbeing,' questions remain about the rationale for this investment. For example, concerns have been expressed that the rationale for such investment places the emphasis on the physical activity and health of children and young people at the expense of a broader form of physical education that focusses on opportunities to engage in a range of learning experiences (Gray, MacIsaac & Jess, 2015).

Similar to physical education, curricular arts programs are often perceived as marginal and therefore susceptible to cuts during periods of economic restraint. Beginning the 1990s (Bess & Fisher, 1993) and increasingly so since the turn of the 21st century (Mark, 2002), advocacy efforts for the arts have increased due to severe budget cuts at educational and cultural institutions (Lowell, 2004). Within Canada, the Coalition for Music Education in Canada (CMEC), a national arts advocacy organization founded in 1992, reports that public school music and arts education programs are reducing. Reasons for this include: competition for instructional time, shortage of qualified teachers, lack of community support, and diversion of school funds to education areas that are evaluated by standardized tests (CMEC, 2017). In their 2010 survey of 1,204 Canadian Schools, the CMEC cited that funding for music education «has decreased in many schools while student participation has been rising» (Hill Strategies Research, p. 5). They further note a «disappointing lack of support from school boards» as a contributing factor to this decrease (p. 7). Robinson (2000) posits that the arts will remain vulnerable within the curriculum as they are perceived as unable to provide students with knowledge, intellectual competencies or workplace skills (2000).

In line with previous work (e.g., CIHI, 2005; Goemans et al., 2018) multiple factors at the individual, family, peer, school, and community levels were related to school engagement in expected directions. Notably, the findings stand in line with previous reports that girls are more engaged in school-related matters than boys (e.g., CIHI, 2005; Fullarton, 2002). The findings illustrate as well the link between positive attitudes toward school and feelings of engagement (e.g., Fullarton, 2002), and between the latter and academic achievement (e.g., Li, Bebiroglu, Phelps, Lerner, & Lerner, 2008; Li & Lerner, 2011; Wang & Holcombe, 2010), especially in early adolescence. Particularly strong, both in early and even more so middle adolescence, are the positive associations observed between a perceived sense of connection to peers and school engagement, which are likely to reflect the increasingly influential role of the peer group during the adolescent years also in terms of school-related outcomes (e.g., Li, Doyle Lynch, Kalvin, Li, & Lerner, 2011).

On the whole, the results stand in line with previous work indicating that participation in extracurricular activities and after school programs of a varied nature, both in- and out-of-school, has positive effects on outcomes related to school engagement in adolescents (e.g., Fredricks & Eccles, 2008; Hee Im et al., 2016; Harvard Family Project, 2008; Marsh, & Kleitman, 2002). An exception to this is the negative association we observed between participation in arts groups or lessons outside of school and school engagement in middle adolescence. Similar to this finding, Martin et al. (2013) reported that participation in instructional arts programs outside of school was negatively associated with outcomes relevant to school engagement and personal wellbeing in a sample of upper elementary and secondary Australian students over a period of two years. To explain this unexpected observation, Martin et al. (2013) conducted follow-up analyses showing that important elements for adaptive participation in instructional out-of-school arts programs are

quality of engagement and active participation. Thus, they argued, some students may have experienced participation in such programs as a time consuming and relatively mundane pursuit to which they were not qualitatively connected. Further, they speculated that out-of-school arts programs are likely to have a narrow focus on domain-specific instruction (e.g., teaching the guitar or particular dance types), whereas in-school arts instruction is likely to be integrated within broader aspects of school activity, such as personal and social development and the curriculum. Alternatively, it could be argued that students concerned by this observation are often in activities that are not popular in their peer group, which places them on the fringes of the school population. It is also possible that students with a particular interest and/or gift for artistic activities cannot find programs that interest and challenge them enough in the schools. Therefore, they are likely to look for appropriate programs in the community, where they may find a 'niche' and devote most of their free time and energy.

Contrary to the previous finding, but also consistent overall with results from Martin et al. (2013), taking part in school-based extracurricular art, drama or music activities was, along with peer connectedness, the most important correlate of school engagement in middle adolescence in the present study. Reminiscent to some extent of this observation, a review by Marsh and Kleitman (2002) concluded that school-based extracurricular activity is more strongly associated with academic achievement than out-of-school activities. Marsh and Kleitman (2002) argued that their review provides support for the identification/commitment hypothesis, according to which context-specific activity impacts one's identification with and commitment to outcomes in that context.

Questions asked of early adolescents in this study did not allow differentiating between in-school and out-of-school participation. This makes interpretation of the small negative (but statistically significant) effect of participation in unorganized sport/physical activity on school engagement during early adolescence difficult. During middle adolescence, only participation in *school-based* unorganized physical activities had a statistically significant negative effect on school engagement. Using an argument similar to the one previously mentioned by Martin et al. (2013), we can hypothesize that participation in such activities may lack to some degree the quality of engagement that is necessary if a positive effect on school engagement is expected to occur. In this regard, this finding may be reminiscent of previous findings indicating that 'hanging out' with friends without set plans is associated with lower behavioral engagement with school (Li et al., 2008). Alternatively, taking part in unorganized school-based physical activities may provide an expression outlet for disaffected students and an opportunity to connect with others who are in a similar situation.

Strengths and Limitations

Our conclusions are based on a large sample drawn from a nationally representative survey that was carefully designed to inform social policy in Canada by collecting information about factors influencing a child's social, emotional and behavioral development and to monitor the impact of these factors on the child's development. To our knowledge, this is the first study that addresses systematically the role of curricular variables when investigating multiple factors affecting students' engagement with the school. The present study used a cross-sectional design to examine associations between variables of interest and therefore inferences about causality are not appropriate. In addition, as Fredricks and Eccles (2008) pointed out, in the absence of longitudinal data, the effects of participation in youth activities may be overstated.

One important question that arises when researching school engagement is who should report on the extent to which students are involved with the school, as relevant individuals, such as teachers, parents and, obviously, the students themselves may have different perspectives on the issue (see Audas & Willms, 2002). Although consistent by and large with the literature, considering only the perspective of the students, as we did in this study, may be considered somewhat of a limitation in this regard. Similarly, students' self- report of how well they think they are doing in school may have biased the true effect of academic achievement/performance on school engagement in this study. In addition, questions about participation in activities asked to the 12-13 year olds did not allow differentiation between school-based and out-of-school activities, and some nuances may have been lost regarding the effect of such activities on school engagement compared with the findings for the 14-15 years group.

The time elapsed since Cycle 3 NLSCY data were collected may be seen as another limitation of this study as it could be argued that the physical education and arts education curriculum has changed in Canadian schools during this period. The extent to which this may represent a problem, however, is mitigated in light of suggestions in the literature that curricular change does not always result in change to teacher practice and that few teachers actually implement curriculum changes in ways they were intended in the first place by educational authorities (e.g., McLean et al., 2015).

The results concerning the association of curricular factors and school engagement are based on a measure of quality of participation (i.e., enjoyment of a particular academic subject). This is important since, as Bohnert et al. (2010) remarked, simply being present at an activity may not be sufficient for reaping the potential benefits ensuing from involvement in the activity. Given that, on the other hand, enjoyment represents the affective component of engagement with an activity, future studies would benefit from using measures that incorporate also cognitive (e.g., self-regulation) and behavioral (e.g., effort) components of engagement. Likewise, future studies could incorporate assessments of instructional dimensions that are likely to affect students' enjoyment of a particular subject matter and how much they engage with it (e.g., Bevans, Fitzpatrick, Sanchez, & Forrest, 2010). Finally, based on the available NLSCY data, we operationalized school engagement as a composite variable encompassing cognitive and behavioral components (i.e., the extent to which students attach importance to participation in relevant activities and to a number of aspects related to school life). Although the components of school engagement are not always distinguishable empirically (Fredricks et al., 2004), it is possible that the results may have varied to some degree had we examined affective and additional behavioral components of school engagement as well.

Conclusions

School engagement is a prominent construct in the education and youth development literatures. This study exposed multiple factors at the individual, family, peer, school, and community levels that are related to school engagement in early and middle adolescence. In terms of curricular factors, high levels of enjoyment of the different academic subjects considered were generally associated with greater school engagement both in early and middle adolescence, with the strongest associations corresponding to physical education and arts education. In fact, all things considered, high levels of enjoyment of these learning areas were among the top factors making a contribution to school engagement in both periods of adolescence, and enjoyment of physical education was actually the strongest contributor to school engagement in early adolescence.

Curricular factors, and in particular the quality of students' experience in physical education and arts education, may be more important than previously recognized in terms of understanding and promoting students' engagement with the school during adolescence. The study's findings emphasize the importance of physical education and the arts— subjects typically considered less essential academically—in the upper elementary and secondary school curriculum. Findings provide also support for the role of participation in extracurricular activities and after school programs in fostering school engagement in adolescence. More research, particularly using longitudinal and mixed methods designs, is needed to further tease out the relationships between curricular and extracurricular factors with school engagement and inform the design of

school-based interventions and programs to promote this developmental asset among young people.

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