

Intensity and Breadth of Participation in Organized Activities during the Adolescent Years:
Multiple Associations with Youth Outcomes

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RUNNING HEAD: Intensity, breadth, and adolescent outcomes over time

Abstract

The goal of this study was to examine initial levels and rates of change in the intensity and breadth of participation in organized activities during the adolescent years, and how these participation practices were related to youth outcomes in later adolescence. The main objectives were (a) to examine growth curves of intensity and breadth of participation from Grades 7 through 11 and their interrelations, and (b) to test the associations between these dimensions of participation and academic orientation, risky behaviors, internalizing problems, and civic development in Grade 11. A homogenous sample of 299 youth (mean age = 13.37, $SD = 0.41$; 62% girls) were surveyed annually using questionnaires and phone interviews. The main results revealed that (a) even though both intensity and breadth of participation decreased over time, intensity of participation showed steeper declines by later grades, and (b) initial levels of participation were better predictors of later outcomes than rates of change over time. Regardless of the levels of change taking place over time, results revealed that youth with high initial levels of participation (both intensity and breadth) were more committed to school and developed more positive values towards society by Grade 11 than those who participated less. This might suggest that a high level of participation during early-to-mid-adolescence is particularly important when it comes to later outcomes.

Keywords: organized activities; intensity; breadth; adolescent outcomes; longitudinal research.

Intensity and Breadth of Participation in Organized Activities during the Adolescent Years: Multiple Associations with Youth Outcomes

Participation in organized activities has been linked to a constellation of positive outcomes in adolescence. These activities, taking place both at school (extracurricular activities) and in the community, are characterized by the presence of an adult leader, rule-guided engagement, regular participation schedules, and an emphasis on skill-building (Larson, 2000; Mahoney & Stattin, 2000). Several studies have shown that participating in these activities is associated with positive educational trajectories (Darling, 2005; Eccles & Barber, 1999; Mahoney, Cairns, & Farmer, 2003), lower rates of both risky behaviors (Eccles & Barber, 1999; Mahoney, 2000) and internalizing problems (Barber, Eccles, & Stone, 2001; Fredricks & Eccles, 2006b), and higher rates of civic engagement (Fredricks & Eccles, 2006b; Gardner, Roth, & Brooks-Gunn, 2008; Zaff, Moore, Papillo, & Williams, 2003). To explain these benefits, researchers have suggested that organized activities are likely to promote positive developmental experiences, such as identity formation, initiative development, skill building, and relations with activity peers and leaders (Denault & Poulin, 2008; Larson, Hansen, & Moneta, 2006; Lerner, Almegiri, Theokas, & Lerner, 2005; Mahoney, Larson, & Eccles, 2005). Although the effects of participation have received a great deal of empirical support, less is known about the developmental course of participation practices over the adolescent years. Is participation stable or does it increase or decrease over time? Are there individual differences in mean trajectories of participation and are these associated with youth outcomes? The main goal of this study was to look at how initial levels and changes in participation practices over time were related to outcomes in later adolescence.

Taking a Longitudinal Approach

Adolescence is a period of multiple physical, cognitive, affective, and social changes. Youth have to adopt new roles, gain autonomy from their family, and explore their identity. They also have to face a major school transition when entering middle school. Along with this transition, organized activities are likely to become salient in their lives. These activities are usually offered at younger ages, but discretionary time increases in early adolescence and youth are faced with a wider range of opportunities both in and out of school (Shanahan & Flaherty, 2001). From a developmental perspective, as proposed by Eccles and Gootman (2002), we believe that organized activities may help youth navigate through the developmental tasks of adolescence, especially those related to autonomy and identity. With respect to autonomy, participation in organized activities is usually voluntary. As youth enter adolescence, they become freer in their choice of activities and making these choices can be part of an autonomous decision making process. Getting involved in organized activities can also be a “socially acceptable” way to spend time away from home and parents might not interfere in these activities. As underlined by Larson, Pearce, Sullivan, and Jarrett (2007), activity participation provides youth with opportunities for individual choice and autonomy negotiation in adolescent-parent relationships. We believe this might be especially true in early adolescence and fade away as youth grow older.

As for identity, as proposed by Barber, Stone, Hunt, and Eccles (2005), participation in organized activities may help youth work through issues of personal and social identity. Youth are likely to explore different activities in early adolescence, as new interests develop. Adolescence is also a time for youth to explore different peer crowds and find one where they can “fit in.” Then, over time, they might commit themselves only to the activities that best reflect who they are or who they would like to be and whose peer subculture they endorse. Time allocation also changes during adolescence (Shanahan & Flaherty, 2001). As they progress

through adolescence, youth are faced with new opportunities and challenges, such as part-time jobs or romantic relationships, resulting in a reorganization of their schedule, possibly at the cost of activity involvement. In other words, the context of organized activities might be especially salient in early-to-mid-adolescence, and become less significant as other contexts become available to youth. Researchers have also suggested that the opportunities for involvement in organized activities may close as youth age because of the requirement of greater skills and commitment (McNeal, 1998; Pedersen, 2005). Consistent with these ideas, youth's participation practices are likely to reach a peak in early-to-mid-adolescence, and then decline over time.

The question is whether this expected decrease is detrimental or beneficial for later outcomes. As revealed by other studies, consistency might be the key. Youth who participate consistently over time show better outcomes than those who do not (Darling, 2005; Fredricks & Eccles, 2006a; Gardner et al., 2008; Mahoney et al., 2003; Zaff et al., 2003). Yet, individual variations are likely to exist in adolescents' participation practices over the years. Participation might increase for some, and decrease or remain stable for others. However, very few studies have examined participation over an extended period of time. Exceptions include Pedersen's study (2005), which examined the number of activities over four years and found decreasing rates of sports and school-based activities, and increasing rates of religious activities. These results suggest that different types of activities do not necessarily follow the same trajectories over time. In this study, our aim was to learn more about the developmental sequence of two dimensions of participation, intensity and breadth.

Considering Different Dimensions of Participation

Initial research in this field was based on simple comparisons between participating and nonparticipating youth (e.g., Mahoney, 2000). More recently, multiple dimensions of activity participation were used to account for the complexity of adolescents' experiences, notably (a)

intensity, or the mean frequency or number of hours of participation and (b) *breadth*, or whether youth are simultaneously involved in more than one type of activity, such as sports and performing arts (Busseri, Rose-Krasnor, Willoughby, & Chalmers, 2006; Fredricks & Eccles, 2006a; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006). In this study, intensity was operationalized as the total number of hours spent in activities over the school year. Intensity is usually indexed as the average number of weekly or monthly hours of participation (Busseri et al., 2006; Mahoney, Harris, & Eccles, 2006). However, not all activities follow a regular schedule and some are likely to fluctuate or be interrupted during the school year. For example, some youth may only participate during two or three months over the year. Accordingly, summing up the number of hours youth actually spent in these activities over a school year could more accurately reflect the intensity of participation during this period of time. Breadth, as in other studies (Fredricks & Eccles, 2006a), was operationalized as the number of different types of activities youth were involved in during the school year (sports, performance and fine arts, academic clubs and organizations, community-oriented activities, service activities, and faith-based youth groups; Larson et al., 2006). To sum up, whereas intensity of participation captures the amount of time youth spend in activities, breadth of participation captures the diversity of contexts youth are involved in.

The importance of considering different dimensions of participation is that each might capture unique features of youth's participation experiences. As for intensity, the more time youth spend in activities, the greater the opportunities will be to strengthen their skills and knowledge, and to engage in interpersonal transactions with activity peers and leaders (Busseri et al., 2006; Larson & Verma, 1999). In other words, youth who spend a lot of time in activities are provided with greater exposure to factors that are likely to promote positive development (Gardner et al., 2008). In addition, the more time youth spend in organized activities, the less

time they will have to get involved in risky behaviors during after-school hours (Fredricks & Eccles, 2006a; Mahoney & Stattin, 2000; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996). As for breadth, youth who participate in distinct types of activities, or diverse learning environments, are given the opportunity to develop a wide range of competencies and interests (Fredricks & Eccles, 2006a, 2006b; Larson et al., 2006; Rose-Krasnor et al., 2006). These youth are also likely to be exposed to different adults and peers, or activity subcultures (Eccles & Barber, 1999). Different profiles of learning experiences have been associated with specific types of activities, such as sports, performance and fine arts, academic clubs or service and faith-based activities (Hansen, Larson, & Dworkin, 2003; Larson et al., 2006). For instance, whereas sports and performance and fine arts are likely to provide more opportunities for initiative development, service activities are more related to teamwork development and social capital (Larson et al., 2006). Being involved in multiple types of activities can also facilitate one's identity exploration and compensate for negative experiences in a particular activity (Busseri et al., 2006; Fredricks & Eccles, 2006a, 2006b).

To summarize, differentiating between the notion of time inherent to intensity of participation and the notion of diversity of experiences inherent to breadth might capture unique aspects of youth activity participation. Each dimension might be differently linked to a constellation of outcomes. In support of this, studies have found different and unique contributions of these dimensions of participation. For instance, Fredricks and Eccles (2006b) found a unique effect of breadth of participation on lower marijuana use one year after high school compared with participation in sports, school clubs, and prosocial activities, measured separately. In a series of two studies, Rose-Krasnor and her colleagues (2006; Busseri et al., 2006) included both intensity (frequency over the last month) and breadth of participation in order to examine their unique contributions to youth's academic orientation, risky behaviors,

well-being, and interpersonal functioning. In a cross-sectional study, Rose-Krasnor et al. (2006) found that intensity and breadth of participation were only moderately correlated. In addition, when considered simultaneously, both intensity and breadth uniquely predicted a more positive academic orientation and greater well-being, whereas only breadth uniquely predicted lower risky behaviors and greater interpersonal functioning. In a two-year longitudinal study, Busseri et al. (2006) added to these findings by showing that only increases in breadth, independent of intensity, were significantly related to a more positive academic orientation and lower risky behaviors after controlling for baseline levels of the outcomes and demographics. As shown by these studies, intensity and breadth of participation are likely to be differentially linked to adolescent outcomes. Moreover, breadth may uniquely contribute to youth development.

Study Objectives and Hypotheses

In light of the above considerations, the goals of this study were twofold. Our first aim was to examine the developmental sequence of intensity and breadth over the adolescent years. The second was to see whether these two dimensions were differently related to outcomes later in adolescence. Knowing more about individual differences in initial levels and changes in intensity and breadth over time, and how they relate to later outcomes, could inform researchers, but also youth workers, about best participation practices in adolescence.

Using latent growth curve analyses, the first objective was to report descriptive information about initial levels and rates of change in intensity and breadth of participation from Grades 7 through 11, covering the entire years of high school in the school system in which the data were collected. Indeed, in the province where the data were collected, high school is comprised of Grades 7 through 11 and there is no change in school environments over these years (i.e., no transition between middle school and high school). The interrelations between the two curves were also examined. We expected both intensity and breadth to decline over time.

Based on prior work (Busseri et al., 2006; Rose-Krasnor et al., 2006), we also expected moderate correlations between intensity and breadth.

The second objective was to examine the contribution of participation growth curves to adolescent outcomes at the end of high school (Grade 11). To this end, we verified whether initial levels of participation and rates of change over time predicted adolescent outcomes in Grade 11. In line with prior studies (Busseri et al., 2006; Rose-Krasnor et al., 2006), adolescent outcomes were captured by multiple composite scores. Measures of academic orientation, risky behaviors, internalizing problems, and civic development were used. In examining these links, gender, family income, and baseline levels of the outcomes measured in Grade 7 were included as covariates. These covariates were added to control for some documented selection effects in youth activity participation, namely that girls, youth from higher SES families, and better adjusted youth are more likely to participate in organized activities than boys (except sports), youth from lower SES families, and less well-adjusted youth (Eccles & Barber, 1999; Fredricks & Eccles, 2006b; McNeal, 1998). In a first set of analyses, the contributions of intensity and breadth to youth outcomes were considered separately; in a second set of analyses, intensity and breadth were examined simultaneously in order to examine their unique contributions. We expected both intensity and breadth to be positively associated with academic orientation and civic development and negatively linked to risky behaviors and internalizing problems. In addition, based on the findings reviewed above, we expected breadth to have more significant associations, or associations of a stronger magnitude, with youth outcomes than intensity of participation.

Methods

Participants

Three hundred and ninety youth participated in this study. The youth were first surveyed in 2001 when they were in Grade 6 (mean age = 12.38, $SD = 0.42$, 58% girls). They were originally recruited from eight elementary schools located in four distinct districts representing different socioeconomic backgrounds in a city of 350,000 residents in the province of Quebec, Canada. The data used in this study were collected annually between Grades 7 and 11. By Grade 11, participants were scattered across 30 high schools. Sixty-five percent of their families had an income of over \$50,000 (CAN) before taxes and 81% of mothers and 96% of fathers had at least a part-time job. Mothers and fathers had similar levels of education ($M = 13.08$ years, $SD = 2.68$ and $M = 13.20$ years, $SD = 3.20$, respectively). Ninety-six percent of the youth were born in Canada and 69% were from two-parent families. The sample was ethnically homogenous. Most of the youth were White and French-speaking (around 3% Black; 1% Asian; 3% Latino, and 3% Arabic).

As in many longitudinal studies, there were missing data at different time points for different youth. Of the 390 youth in the study, 92% were still participating in Grade 7 ($n = 360$), 72% in Grade 8 ($n = 282$), 75% in Grade 9 ($n = 293$), 76% in Grade 10 ($n = 296$), and 77% in Grade 11 ($n = 303$). Overall, 18% of data were missing across all waves of data collection. To reduce the amount of missing data, only youth with data (a) for at least two time points out of five on participation variables, and (b) for at least one outcome out of four, were included in the analyses. As a result, the final sample comprised 299 youth. There were differences between the analytic and excluded samples with respect to gender, family income, and academic orientation and risky behaviors in Grade 7. Youth in the analytic sample were more likely to be girls, came from more affluent families, and showed a more positive academic orientation and lower levels of risky behaviors in Grade 7.

Procedure and Study Design

A trained team of research assistants carried out data collection at the youth's schools. The youth had to leave their classrooms to complete the questionnaires in small groups. Participation in organized activities was assessed annually during the spring of Grades 7 through 11. In Grade 7, participation was measured using a paper-and-pencil questionnaire at school. In Grades 8, 9, 10, and 11, participation data were collected using structured phone interviews. The phone interview questions were identical to those that appeared in the Grade 7 paper-and-pencil-questionnaire. All outcomes were assessed using paper-and-pencil-questionnaires, except school grades, which were collected from official school records.

Measures

Youth Activity Participation (Grades 7 through 11)

Youth activity participation was measured over a full school year (10 months; from September to June) using a free recall procedure. To facilitate recall, youth first had to identify all the organized activities (both school- and community-based) they were involved in from September to December (before winter break). Second, they had to identify all the organized activities they were involved in from January to June (after winter break). For each activity identified, they also had to complete a brief questionnaire. The items targeted the following features: frequency of participation, number of hours of participation, number of months of participation during the school year, presence of an adult activity leader, and presence of rules. To verify whether the activities listed met the definition of an organized activity, the following criteria were applied: (a) regular frequency of participation, (b) presence of an adult activity leader, and (c) rule-guided engagement.

Intensity of participation. To compute *intensity* of participation, we multiplied the number of hours of participation per week by the number of weeks of participation within a school year (approximately 10 months) for each activity reported by the youth. For example, for

a youth who played basketball 3 hours per week from September to June, we multiplied 3 hours by 40 weeks of participation, which resulted in a total of 120 hours of participation over the school year. We then summed up the number of hours for all activities reported by the youth. Thus, intensity of participation was operationalized as the total number of hours spent in organized activities over a full school year. In order to lower the dependency between intensity and breadth of participation, the total number of hours was divided by the respective total number of activities each year (range = 0 to 300 across waves of measurement).

Breadth of participation. To compute *breadth* of participation, we first grouped all the activities reported by the youth into seven categories (Fredricks & Eccles, 2006a; Larson et al., 2006): (a) Individual sports: karate, gymnastics, swimming, etc.; (b) Team sports: basket-ball, soccer, football, ice hockey, etc.; (c) Performance and fine arts: dance, art, drama, band, etc.; (d) Academic clubs and organizations: math club, chess club, computer club, newspaper, radio, student government, etc.; (e) Community-oriented activities: scouts or girls or boys clubs, 4-H, environmental group, etc.; (f) Service activities; and (g) Faith-based youth groups. Second, we summed up the number of different activity contexts in which the youth were involved. For example, if a youth reported participating in a basket-ball team, in a soccer team, and in a school band, s/he was attributed a score of two, i.e., one for being in a “team sports” activity context and one for being in a “performance and fine arts” activity context. Thus, breadth of participation was operationalized as the number of different activity contexts over a full school year (range = from 0 to 7 across waves of measurement). Descriptive information for intensity and breadth at each wave of data collection is presented in Table 1. It should be noted that, in order to facilitate model estimation, the number of hours (intensity) were divided by ten before conducting the analyses.

Outcomes (Grade 11)

Academic orientation. Four indicators were included in this composite score: (a) grades, (b) educational aspirations, (c) self-perceptions of academic competence, and (d) skipping class (recoded). For school grades, final grades (percentages) were taken from the students' official school records ($M = 68.26$, $SD = 10.73$). Educational aspirations were assessed using a single item: "What do you plan to do after finishing high school?" This item was rated on a 5-point Likert scale: 1 = *not finish high school*, 2 = *go into the workforce without training*, 3 = *get training with no access to college*, 4 = *get training with access to college*, and 5 = *go to college*. The mean score was 4.20 ($SD = 0.95$). Perceptions of academic competence were measured using the Self-Perception Profile for Adolescents (SPPA; Harter, 1988). This scale is comprised of five items (e.g., "Some kids are pretty slow in finishing their school work BUT Other kids can do their school work quickly"). Youth first have to decide which statement best describes them and then indicate whether the statement is "really true for me" or "sort of true for me." The mean scores were used ($M = 3.12$, $SD = 0.58$, $\alpha = .75$). Finally, skipping class was measured using a single item: "Since the beginning of the school year, how many days of school have you skipped because you didn't want to go or because you had something more important or interesting to do?" The ten response options ranged from "none" to "more than 20 days." The mean score was used ($M = 4.00$, $SD = 2.97$ on the non original recoded scale). The composite index for *academic orientation* was formed by standardizing and averaging the five indicators, such that higher scores reflected a more positive academic orientation ($\alpha = .64$). Descriptive statistics for each outcome appear in Table 1.

Risky behaviors (Grade 11). Three indicators were included in this composite score: (a) antisocial behaviors, (b) substance use, and (c) unsafe sex. For antisocial behaviors, youth were asked to report on 16 items regarding a range of problem behaviors *during the last month*, rated

on a 5-point Likert scale ranging from 1 (*never*) to 5 (*more than 10 times*). Examples of items included lying to parents, vandalizing public property, stealing, and fighting at school. The mean scores were used ($M = 1.37$, $SD = 0.42$, $\alpha = .75$). For substance use, alcohol use, cigarette smoking, marijuana use, and the use of hard drugs were each assessed using a single item. The item for alcohol assessed the number of alcoholic beverages the youth had drunk *during the last month*, rated from 0 to 13 (*41 drinks or more*). The item for cigarette smoking assessed the number of cigarettes the youth had smoked *during the last month*, rated from 0 to 24 (*31 packs or more*). The items for marijuana and hard drugs assessed the number of times the youth had used drugs *during the last month*, rated from 0 to 13 (*41 times or more*). These four items were standardized and the mean scores were used ($M = -.002$, $SD = 0.73$, $\alpha = .72$). Finally, unsafe sex was measured by asking the youth: “During the last year, when you had sexual intercourse, how often did you use condoms?” This item was rated on a 6-point Likert scale ranging from 1 (*did not have sexual intercourse*) to 6 (*never*) ($M = 2.31$, $SD = 1.62$). The composite index for *risky behaviors* was formed by standardizing and averaging the three indicators, such that higher scores indicated riskier behaviors ($\alpha = .63$).

Internalizing problems. Three indicators were included in this composite score: (a) depressive symptoms, (b) self-worth (recoded), and (c) loneliness. Depressive symptoms were assessed using the Children’s Depression Inventory (CDI; Kovacs, 1981). In this 27-item questionnaire, each item consists of three choices coded from 0 to 2 in the direction of increasing severity. The time frame is *over the past two weeks*. The CDI has been shown to be reliable and valid in large representative samples of youth (Kovacs, 1983). In this study, the item tapping suicidal ideation was removed from the questionnaire, resulting in 26 items and a range of 0 to 52. The sum of scores was used ($M = 9.09$, $SD = 5.96$, $\alpha = .83$). Self-worth was measured using

the Self-Perception Profile for Adolescents (SPPA; Harter, 1988). This scale is comprised of five items (e.g., “Some kids are often unhappy with themselves BUT Other kids are pretty pleased with themselves”; see above for anchors). The mean scores were used ($M = 2.95$, $SD = 0.42$ on the original non recoded scale, $\alpha = .90$). Finally, loneliness was measured using a 10-item scale (brief version of the UCLA Loneliness scale, Russell, 1996; e.g., “I feel lonely”), rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The mean scores were used ($M = 1.57$, $SD = 0.50$, $\alpha = .84$). The composite index for *internalizing problems* was formed by standardizing and averaging the three indicators, such that higher scores reflected greater internalizing problems ($\alpha = .80$).

Civic development. Three indicators were included in this composite score (Flanagan et al., 1999): (a) commitments to civil society, (b) environmental sustainability, and (c) altruism. Commitments to civil society were assessed using six items (e.g., “Helping those who are less fortunate”), with response options ranging from 1 (*not at all important*) to 5 (*very important*). The mean scores were used ($M = 3.14$, $SD = 0.89$, $\alpha = .88$). Environmental sustainability was measured using three items (e.g., “Doing something to stop pollution”), with the same response options described above. The mean scores were used ($M = 3.58$, $SD = 0.99$, $\alpha = .80$). Finally, altruistic philosophy was assessed using six items (e.g., “In the future when I’m an adult, I would be willing to work fewer hours and earn a lower income if that would create jobs for unemployed people”), with response options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). It should be noted that these scales measured beliefs and intentions rather than actual behaviors. The mean scores were used ($M = 3.31$, $SD = 0.76$, $\alpha = .82$). The composite index for *civic development* was formed by standardizing and averaging the three indicators, such that higher scores reflected greater civic development ($\alpha = .79$).

Baseline controls (Grade 7)

To control for prior outcomes (Grade 7), baseline controls were created for academic orientation, risky behaviors, and internalizing problems. No baseline control could be created for civic development since no data was available in Grade 7. For the other controls, we relied on available data. As a result, baseline controls were not identical to the Grade 11 composite scores. However, when included, the Grade 7 indicators were the same as those described above and showed similar Cronbach's alphas. The Grade 7 composite scores were formed in the same way as the Grade 11 composite scores. Differences were noted otherwise. For *academic orientation*, two indicators were included in the baseline control: (a) grades and (b) self-perceptions of academic competence. The mean scores were 72.52 ($SD = 10.76$) and 3.12 ($SD = 0.64$), respectively. For *risky behaviors*, two indicators were included in the baseline control: (a) antisocial behaviors and (b) substance use. The mean score for antisocial behavior was 1.51 ($SD = 0.52$). For substance use, only alcohol, cigarette, and marijuana were included (too few youth indicated hard drug use), and these scores were transformed using the natural logarithm because of non-normality. For *internalizing problems*, two indicators were included in the baseline score: (a) depressive symptoms and (b) self-worth (recoded). The mean scores were 8.59 ($SD = 5.86$) and 2.98 ($SD = 0.41$ on the original non recoded scale), respectively.

Family income. Family income before taxes was used as an indicator of the families' economic situation. Parents responded to a single item, "Which of the following categories does your total family income before taxes come under for the year 2000", with response options ranging from 1 (*under \$5,000*) to 13 (*\$60,000 and over*). The median response represented approximately \$55,000 CAN.

Analytical Strategy

Analyses were conducted in three steps. In the first step, the latent growth curves of intensity and breadth were identified in univariate models. Fitting the latent growth curves provides information about the shape of the mean-level trajectory and the variability around this mean trajectory. In the second step, each outcome was regressed on each latent growth curve of participation (intercept and slope) in order to examine whether initial levels of participation and rates of change over time predicted the adolescents' outcomes in Grade 11. Covariates were also included in these models. In the third step, each outcome was regressed on both curves of participation (intercepts and slopes) in order to examine the unique contributions of intensity and breadth. Models were tested using Mplus 4.2 (Muthén & Muthén, 2006). In this statistical package, missing data (6%) were handled with a full information maximum likelihood procedure.

Results

Descriptive Analyses

Means, standard deviations, and correlations between variables are presented in Table 1. Participation variables and outcomes were normally distributed, except for risky behaviors. Consequently, the scores of risky behaviors were transformed using the natural logarithm. With respect to correlations between intensity and breadth, as can be observed in this table, these dimensions were significantly but moderately correlated at each time point (r from .28 to .61). Concerning the covariates, whereas family income was positively linked to both participation dimensions (Grades 8 and 9), gender differences were only found in Grade 7. Boys participated more intensively than girls, and girls participated in a more diverse set of activities than boys. In addition, academic orientation in Grade 7 was positively related to breadth of participation in Grade 11, whereas risky behaviors in Grade 7 were negatively linked to breadth of participation in Grade 8. Youth from higher income families also had higher scores on academic orientation in

Grade 11, and girls had higher scores on civic development. Correlations between participation variables and outcomes revealed that intensity and breadth of participation were consistently and positively associated with academic orientation and civic development. Fewer significant associations were found with respect to risky behaviors and internalizing problems, although these associations were in the expected direction (negative). Finally, correlations between the four outcomes were low to moderate (r from $-.41$ to $.12$), suggesting that each might tap different aspects of adolescent development, thereby reducing redundancy across the analyses.

Univariate Latent Growth Curve Models

To identify the shape of the curves for intensity and breadth, three models were examined in which the growth parameters were specified differently: intercept only (no slope), linear (fixed at 0, 1, 2, 3, and 4), and quadratic (fixed at 0, 1, 4, 9, and 16). Only these parameters were fixed. Differences in chi-squares were then compared to identify the best-fitting model for each curve. Models that provide a good fit to the data have nonsignificant chi-square values ($p > .05$), comparative fit indexes (CFI) and Tucker-Lewis Indexes (TLI) greater than .95, and root mean square errors of approximation (RMSEAs) of less than .06 (Hu & Bentler, 1999). Results for each tested model appear in Table 2. As shown in this table, for intensity, the quadratic model provided a better fit to the data than the linear model (Model 3 versus Model 2). It can also be observed from this table that the correlation between the linear and quadratic slopes in this model was $-.91$ ($p < .05$). In order to lower the collinearity between the two slopes, we used a time-centering strategy, moving the 0 value from left to right. Different combinations were tried: -1, 0, 1, 2, 3; -2, -1, 0, 1, 2; and -3, -2, -1, 0, 1. In doing so, we realized that the best compromise was to recode time from -1 to 3, resulting in a correlation of $-.74$ (ns) between the two parameters. Indeed, when moving the 0 value further to the right, significant effects on the Grade 11

outcomes tended to disappear, seeming to indicate that early-to-mid-adolescence is the sensitive period in which to capture participation practices. This model (-1, 0, 1, 2 and 3) was our final model (Model 4). Significant variability was observed around the intercept and slopes of this final curve (intercept: $\mu_0 = 15.69$, $SE = 1.91$, $z = 8.20$, $p < .001$; linear slope: $\mu_1 = 2.69$, $SE = 1.21$, $z = 2.22$, $p < .05$; quadratic slope: $\mu_2 = 0.38$, $SE = 0.16$, $z = 2.34$, $p < .05$), suggesting between-person variations around this mean trajectory. Graphs of observed and predicted values are presented in Figure 1a. It can be observed that, on average, intensity increased in early-to-mid-adolescence, but then decreased steeply towards Grade 11.

For breadth, the quadratic model also provided a better fit to the data than the linear model (Model 3 versus Model 2). However, an examination of the fit statistics revealed that this model was still inadequate (e.g., significant chi-square, RMSEA = .09). In order to improve model fit, a correlation between the Grade 7 and 9 residuals was added based on modification indices ($r = -.24$). We then re-examined the linear and quadratic models specified with the correlated residuals (Models 4 and 5). As can be seen in Table 2, these models were not statistically different ($\Delta\chi^2 = 2.24$, which is lower than the 9.49 reference value for four degrees of freedom). For parsimony, we selected the linear model. In addition, in line with the model for intensity, time was recoded -1, 0, 1, 2, and 3 (Model 6). This was our final model. Significant variation was also observed around the intercept and slope of this final curve (intercept: $\mu_0 = 0.32$, $SE = 0.04$, $z = 8.99$, $p < .001$, slope: $\mu_1 = 0.034$, $SE = 0.006$, $z = 5.52$, $p < .001$), suggesting inter-individual variability around this mean trajectory. Graphs of observed and predicted values are presented in Figure 1b. It can be observed that, on average, breadth decreased linearly across measurement times.

Interrelations between the two growth curves were also examined in order to explore whether the initial levels of intensity could predict changes in breadth over time after controlling

for the initial levels of breadth, and vice versa. To this end: (a) the linear slope of breadth was regressed on intercepts of intensity and breadth, (b) the linear slope of intensity was regressed on intercepts of intensity and breadth, and (c) the quadratic slope of intensity was regressed on intercepts and linear slopes of intensity and breadth. The intercepts of intensity and breadth were correlated, as were their linear slopes (bidirectional arrows). This model fit the data adequately ($\chi^2(31) = 60.89, p = .001, CFI/TLI = .965/.950, RMSEA = .06, 90\% CI = .04, .08$)¹. Results first revealed that the intercepts and linear slopes of intensity and breadth were positively correlated ($r = .69, p < .001; r = .28, p < .05$, respectively). Predictive paths appear in Table 3. Taken together, these results suggest that both dimensions were closely related over time. For instance, when initial levels of breadth were controlled for, higher levels of intensity in early-to-mid-adolescence predicted lower decreases in breadth. The reverse was also true for the quadratic slope of intensity. In other words, a high score on one dimension in early-to-mid-adolescence was protective of declines in the other dimension over time.

Predicting Youth Outcomes in Grade 11 from Growth Curves of Participation

In these analyses, we examined whether initial levels and rates of change in participation from Grades 7 through 11 predicted youth outcomes in Grade 11. To this end, outcomes were regressed on the intercept and slope (both linear and quadratic for intensity) of the participation dimensions and covariates. The participation growth curves were also regressed on the covariates. In the first set of analyses, eight models were tested separately to examine whether intensity and breadth were linked to academic orientation, risky behaviors, internalizing problems, and civic development in Grade 11. Main path coefficients for this set of analyses are presented in Table 3.

Models for intensity of participation fit the data adequately² (academic orientation: $\chi^2(14) = 27.48, p = .02, CFI/TLI = .964/.916, RMSEA = .06, 90\% CI = .02, .09, R^2 = .36$; risky

behaviors: $\chi^2(14) = 28.50, p = .01, CFI/TLI = .957/.898, RMSEA = .06, 90\% CI = .03, .09, R^2 = .22$; internalizing problems: $\chi^2(14) = 28.11, p = .01, CFI/TLI = .958/.901, RMSEA = .06, 90\% CI = .03, .09, R^2 = .21$; civic development: $\chi^2(10) = 23.53, p = .01, CFI/TLI = .954/.904, RMSEA = .07, 90\% CI = .03, .10, R^2 = .10$). As shown in Table 3, results revealed that the intercept of intensity predicted an increase in (a) *academic orientation*, after controlling for gender, family income, and academic orientation in Grade 7 and (b) *civic development*, after controlling for gender. In other words, youth that were intensively involved in activities in early-to-mid-adolescence showed a more positive academic orientation and greater civic development in Grade 11. No significant results were found with respect to risky behaviors and internalizing problems.

Models for breadth of participation fit the data well (academic orientation: $\chi^2(21) = 23.96, p = .29, CFI/TLI = .993/.989, RMSEA = .02, 90\% CI = .00, .06, R^2 = .35$; risky behaviors: $\chi^2(21) = 22.84, p = .35, CFI/TLI = .995/.992, RMSEA = .02, 90\% CI = .00, .05, R^2 = .22$; internalizing problems: $\chi^2(21) = 29.04, p = .11, CFI/TLI = .978/.966, RMSEA = .04, 90\% CI = .00, .07, R^2 = .22$; civic development: $\chi^2(18) = 22.15, p = .23, CFI/TLI = .988/.981, RMSEA = .03, 90\% CI = .00, .06, R^2 = .12$). As shown in Table 3, results revealed that the intercept of breadth predicted an increase in (a) *academic orientation*, after controlling for gender, family income, and academic orientation in Grade 7 and (b) *civic development*, after controlling for gender, and family income. In other words, youth who were involved in a diverse set of activities in early-to-mid-adolescence showed a more positive academic orientation and greater civic development in Grade 11. In addition, rates of change in breadth were positively linked to academic orientation in Grade 11, suggesting that youth who decreased the breadth of their participation at slower rates over the years showed a more positive academic orientation in Grade 11. No significant results were found with respect to risky behaviors and internalizing problems. In addition, some

of the paths were at the $p < .10$ level, notably the negative path between changes in breadth and risky behaviors and the positive path between changes in breadth and civic development ($z = 1.94$ and 1.90 , respectively).

In the second set of analyses, both curves were included in the models in order to test for their unique contributions to the youth's outcomes (four models). In other words, each Grade 11 outcome was regressed on the intercept of breadth, linear slope of breadth, intercept of intensity, linear and quadratic slopes of intensity, and covariates. The models fit the data adequately (academic orientation: $\chi^2(55) = 101.19$, $p = .00$, CFI/TLI = .953/.925, RMSEA = .05, 90% CI = .04, .07, $R^2 = .37$; risky behaviors: $\chi^2(55) = 99.76$, $p = .00$, CFI/TLI = .953/.924, RMSEA = .05, 90% CI = .04, .07, $R^2 = .24$; internalizing problems: $\chi^2(55) = 106.02$, $p = .00$, CFI/TLI = .947/.915, RMSEA = .06, 90% CI = .04, .07, $R^2 = .46$; civic development: $\chi^2(50) = 101.27$, $p = .00$, CFI/TLI = .944/.914, RMSEA = .06, 90% CI = .04, .07, $R^2 = .12$). However, results revealed no significant paths involving growth parameters (intercepts and slopes) of both intensity and breadth. In other words, when considered simultaneously, the growth curves of intensity and breadth did not make unique contributions to the youth's outcomes.

Discussion

In this study, we examined the developmental progression of intensity and breadth from Grade 7 through 11. We also examined whether these two dimensions of participation were differently associated with academic orientation, risky behaviors, internalizing problems, and civic development in Grade 11. The main findings revealed that both dimensions declined over the years, intensity following a more complex trajectory than breadth of participation. We also found that each dimension predicted changes in the other, even after controlling for its own initial levels, suggesting close relations between these two phenomena over the years. With respect to outcomes, only associations with academic orientation and civic development were

found. Moreover, initial levels of participation were better predictors than rates of change and for the most part, both dimensions showed the same results. Finally, no unique contributions were found when both dimensions were considered simultaneously in the models. Altogether, our results contribute to the extant body of prior research showing that participation in organized activities, being captured by intensity or breadth, predicts future positive outcomes among adolescents.

Intensity and Breadth of Participation over Time

Our first objective was to examine growth curves of intensity and breadth over the adolescent years. We initially found moderate correlations between these two dimensions of participation, as also found by Rose-Krasnor and colleagues (2006). Yet, correlations between intensity and breadth tended to increase over time, suggesting greater homogeneity in youth's participation practices as they grow older. As noted by Busseri et al. (2006), this is likely to reflect the increasing proportion of nonparticipants over time, or number of zeros, which inflates the covariance between participation scores. We also found that intensity and breadth did not follow the same trajectories over time. Whereas intensity followed a curvilinear trajectory with a steep decrease by the end of high school, breadth showed a linear decreasing trajectory. Even though the shape of the trajectories was not the same, both showed a decline towards the end of high school. Given the likely changes in autonomy, identity exploration, time allocation, and opportunities for involvement during the course of adolescence (Barber et al., 2005; McNeal, 1998; Pedersen, 2005; Shanahan & Flaherty, 2001), this decline was expected for a majority of youth. As put forward in the introduction, participation in organized activities may be rooted in these developmental processes. Still, there were individual variations around the mean trajectories of intensity and breadth, so not every youth followed the same pathway. Are some

pathways better than others when it comes to later outcomes? Before looking at this issue, we wanted to know more about the interplay between intensity and breadth over the years.

Interrelations between the two growth curves were examined in order to explore whether initial levels of one dimension could predict changes in the other, independent of its own initial levels. Was one of the dimensions driving the other over the years? The proposition that there might be a developmental sequence from breadth to intensity has been examined in other studies (Busseri et al., 2006; Côté, 1999). According to this proposition, youth are likely to initially explore a number of activities and then progressively select one or two in which they feel skilled and to which they will devote a greater amount of time. Even though this sequence was not specifically tested in this study, our results revealed that participating intensively or in a diverse set of activities in early-to-mid-adolescence predicted lower declines in the other dimension over time. These results reflect how tightly related these dimensions are over the years. Our second objective was to examine whether intensity and breadth were differently linked to adolescent outcomes.

Associations between Dimensions of Participation and Outcomes

Our decision to consider both intensity and breadth of participation was based on the possibility that each might be differently associated with adolescent outcomes. Even though both dimensions decreased over time, individual variations around these mean trajectories could be differently linked to later outcomes. Results revealed that associations between participation and outcomes were in the expected direction. However, few significant links were found and these related only to academic orientation and civic development. Moreover, initial levels of participation practices were better predictors than rates of change. More specifically, after controlling for covariates, we found that higher levels of intensity and breadth of participation in early-to-mid-adolescence predicted a more positive academic orientation and greater civic

development in Grade 11. In addition, youth who decreased their breadth of participation at slower rates over the years showed a more positive academic orientation in Grade 11. Rates of change in breadth also tended to predict risky behaviors and civic development in the expected direction, but because these paths did not reach significance ($z = 1.94$ and 1.90 , respectively), they are not discussed here.

Our results suggest that participation practices in early-to-mid-adolescence may be a good indicator of a positive developmental trajectory throughout adolescence, regardless of the levels of change that take place over time. Youth with high initial levels of participation were more committed to school and developed more positive values towards society by Grade 11 than those who participated less. Early-to-mid-adolescence might be a critical period for youth to deal with the multiple challenges they are faced with, especially in a context of a school transition (Seidman & French, 2004). The positive developmental experiences likely to prevail in activity contexts, such as identity formation, initiative development, and relatedness with peers and leaders (Denault & Poulin, 2008; Eccles & Gootman, 2002; Larson et al., 2006; Lerner et al., 2005; Mahoney et al., 2005) may help youth negotiate the salient developmental tasks of adolescence. This does not necessarily mean that participation in activities in later years is trivial. We found that slower decreases in breadth predicted higher academic orientation. Moreover, consistency is an important dimension of youth activity participation (Darling, 2005; Fredricks & Eccles, 2006a; Gardner et al., 2008; Mahoney et al., 2003; Zaff et al., 2003). Youth with high levels of participation in early-to-mid-adolescence may also remain more involved over time, although perhaps to a lesser degree. Nonetheless, based on our findings, a high level of participation during early-to-mid-adolescence might be a best participation practice during adolescence. For those working with young people, this could suggest putting extra effort into promoting activity participation during the transition to middle school.

An alternative explanation is that thriving youth may be more likely to get involved in organized activities in early-to-mid-adolescence to meet their future needs and goals. The issues of selection effects were not resolved in this study. We tried to reduce their impact in our models by controlling for various covariates. Yet, even if selection effects were at play, as found in prior research (Bohnert, Kane, & Garber, 2008), we believe they cannot totally overcome the positive contribution of organized activities. We should also note that both participation practices were related to the “positive” outcomes (academic orientation and civic development) as opposed to the “negative” outcomes (risky behaviors and internalizing problems) examined in this study. This is surprising since effects of participation in organized activities are usually found on both types of outcomes (Busseri et al., 2006; Darling, 2005; Eccles & Barber, 1999; Fredricks & Eccles, 2006b). This may have to do with the use of composite scores as opposed to individual indicators. For instance, both antisocial behaviors and substance use were included in the risky behaviors’ composite score. Whereas participation is usually linked to lower levels of problem behaviors, findings are mixed with respect to substance use (Eccles & Barber, 1999; Fredricks & Eccles, 2006b; Mahoney, 2000). Mixed findings have also been found for depressive symptoms and self-esteem (Barber et al., 2001; Darling, 2005; Fredricks & Eccles, 2006b).

Overall, our findings are both in line with and contrary to prior research and what we expected. In line with previous studies and consistent with our expectations, when considered separately, breadth was slightly more related to outcomes than intensity (Busseri et al., 2006; Fredricks & Eccles, 2006a; Rose-Krasnor et al., 2006). However, as opposed to the studies cited above, we found few associations between these two dimensions of participation and youth’s outcomes and no unique contribution of breadth when considered simultaneously with intensity. This might have to do with the specific type of analyses used in this study. We examined the unique contributions of the latent growth curves of intensity and breadth, which took into

account five measurement points during the adolescent years. This is different from examining the unique effect of one dimension over the other from one year to the next. What our results suggest is that the developmental phenomena behind intensity and breadth might overlap to too great a degree to account for unique portions of variance in adolescent outcomes.

Limitations and Future Studies

This study is not without limitations. First, whereas breadth took into account the specific types of activities youth were involved in, intensity did not. Yet, multiple studies have shown that the processes and outcomes associated with youth activity participation differ with respect to the types of activities investigated (Eccles & Barber, 1999; Fredricks & Eccles, 2006a, 2006b; Larson et al., 2006). Future studies are needed to examine whether, for instance, intense participation in sports, intense participation in performing arts, or intense participation in both contexts are differently linked to adolescent outcomes. It would also be interesting to examine the synergistic effects between the different dimensions of participation. When looking at the interaction between intensity and breadth on youth's well-being, Rose-Krasnor et al. (2006) found that the link between one dimension and well-being was strongest at high levels of the other dimension. In addition, we did not specifically test for the "over-scheduling hypothesis." Thresholds or tipping points with some diminishing benefits have been documented in prior research (Busseri et al., 2006; Fredricks & Eccles, 2006b; Gardner et al., 2008; Mahoney et al., 2006; Rose-Krasnor et al., 2006). Even though these effects merit consideration, researchers tend to agree that they are rather small in comparison to the great number of positive outcomes associated with activity participation during the adolescent years.

Subjective aspects of participation, such as psychological engagement in activities, should also be taken into account in future studies. In this study, only behavioral engagement was considered and, as underlined by Rose-Krasnor (2009), this only provides information on

the quantity of involvement but not the *quality*. Finally, even though we included relevant control variables in our models, we did not examine whether our results would have been the same for different groups of youth, such as those at risk, in one or more social contexts. Even though all youth are expected to benefit from activity participation, an increasing number of researchers suggest that at-risk youth might benefit the most (Darling, 2005; Fredricks & Eccles, 2006b; Mahoney et al., 2003; Pedersen, 2005). Furthermore, our sample was predominantly composed of White, middle-class youth, which limits the generalizability of the findings.

Conclusion

Even though our results need replication in future research, the present study highlighted the importance of examining the developmental sequence of participation practices through the adolescent years. Looking at intensity and breadth of participation, we found that both participation dimensions decreased over time. Nonetheless, both intensity and breadth of participation were positively linked to academic orientation and civic development in Grade 11, which add further to numerous studies showing the positive contribution of organized activities in late adolescence. Overall, our study adds to the understanding of the potential role participation in organized activities might play in adolescent development by suggesting that high levels of participation in early-to-mid-adolescence—a period characterized by multiple changes in youth's lives—may be especially significant for youth's successful development in late adolescence. This is of great consequence since youth are about to face another major transition in their lives. They are gradually leaving adolescence to enter emerging adulthood, with all the new challenges they will now have to face.

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Footnotes

¹ To improve model fit, correlations had to be added between the residual errors of intensity and breadth in Grades 8, 10, and 11 (standardized coefficients = .14, .16, and .20, respectively). Given that these two constructs were derived from the same measure, it is reasonable to think that their errors can be correlated (at least the component associated with measurement errors).

² The initial model fit for civic development was $\chi^2(12) = 28.78, p = .00, CFI/TLI = .944/.875, RMSEA = .07, 90\% CI = .04, .10, R^2 = .11$. To improve model fit, we first examined different sources of misfit such as modification indices and negative residuals in the output. Since no source of misfit could be identified, we ran the unconditional model and then introduced each covariate, one at a time. The best-fitting model was that excluding family income.

Table 1

Descriptive Data and Correlations for Participation Variables, Outcomes, and Covariates (n = 299)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. G7-intensity	-																		
2. G8-intensity	.47*	-																	
3. G9-intensity	.29*	.46*	-																
4. G10-intensity	.33*	.37*	.46*	-															
5. G11-intensity	.19*	.30*	.31*	.43*	-														
6. G7-breadth	.28*	.33*	.19*	.14*	.24*	-													
7. G8-breadth	.20*	.51*	.37*	.20*	.26*	.49*	-												
8. G9-breadth	.21*	.46*	.50*	.38*	.31*	.21*	.48*	-											
9. G10-breadth	.26*	.34*	.33*	.50*	.44*	.21*	.28*	.47*	-										
10. G11-breadth	.22*	.36*	.34*	.32*	.61*	.22*	.31*	.36*	.50*	-									
11. Gender (0=girls, 1=boys)	.16*	.02	.02	.12	.03	-.13*	-.03	.02	.01	-.04	-								
12. Family income	.08	.21*	.12	.01	.04	.09	.18*	.18*	.12	.09	.04	-							
13. G7-academic orientation	.05	.09	-.00	-.02	.05	.09	.08	.06	.08	.13*	.05	.23*	-						
14. G7-risky behaviors	.07	-.07	-.03	-.08	-.10	-.08	-.12*	-.10	-.12	-.09	.05	.02	.36*	-					
15. G7-internalizing prob.	-.01	.06	.00	-.09	-.09	-.06	-.08	.01	-.06	.04	-.18*	-.12	-.51*	.37*	-				
16. G11-academic orient.	.19*	.16*	.16*	.14*	.08	.14*	.18*	.16*	.24*	.18*	-.07	.15*	.54*	-.32*	-.25*	-			
17. G11-risky behaviors (ln)	.06	-.05	.02	-.05	-.11	-.03	-.08	-.01	-.14*	-.12*	.05	.01	-.29*	.44*	.21*	-.41*	-		
18. G11-internalizing prob.	-.11	-.01	-.05	-.08	-.10	-.13*	-.10	-.11	-.15*	.05	-.08	.02	-.21*	.09	.43*	-.31*	.08	-	
19. G11-civic development	.01	.16*	.13*	.04	.14*	.17*	.14*	.09	.19*	.17*	-.25*	.04	.12*	-.14*	-.00	.12*	-.05	-.13*	-
<i>M</i>	5.43	5.21	5.55	5.56	3.60	1.21	1.10	0.92	0.86	0.72	.38	10.90	.55	-.06	-.05	.03	-.32	.01	.00
<i>SD</i>	5.21	5.19	5.79	6.12	4.74	0.89	0.86	0.72	0.73	0.79	.49	2.83	.86	.90	.90	.66	.82	.85	.84

Table 2

Univariate Model Fit Indices for Growth Curves of Participation Variables (n = 299)

	Model fit indices						Latent factor means				Latent factor correlations						
	df	χ^2	p	CFI	RMSEA	$\Delta\chi^2$	Intercept		Linear slope / quadratic slope				i, s	i, q	s, q		
							b	SE	beta	p	b	SE				beta	p
Intensity																	
1. Intercept only	13	86.97	.000	.721	.14 (.11, .17)	-	5.09	.23	1.55	.001	-	-	-	-	-	-	-
2. Linear model	10	43.96	.000	.872	.11 (.08, .14)	42.81*	5.74	.29	1.43	.001	-.39	.09	-.38	.001	-.57*	-	-
3. Quadratic model	6	14.77	.022	.967	.07 (.03, .12)	29.19*	5.32	.30	1.34	.001	.65	.30	.24	.05	-	-	-
	-	-	-	-	-	-	-	-	-	-	-.25	.07	-.41	.001	-.21	-.04	-.91*
4. Final quadratic (time centered)	6	14.77	.022	.967	.07 (.03, .12)	-	5.71	.27	1.44	.001	.14	.17	.08	ns	-	-	-
	-	-	-	-	-	-	-	-	-	-	-.25	.07	-.41	.001	.16	-.50*	-.74
Breadth																	
1. Intercept only	13	147.9	.000	.550	.19 (.16, .21)	-	0.93	.03	1.96	.001	-	-	-	-	-	-	-
2. Linear model	10	37.33	.000	.909	.10 (.06, .13)	110.6*	1.20	.05	2.00	.001	-.12	.02	-.73	.001	-.58*	-	-
3. Quadratic model	6	19.01	.004	.957	.09 (.04, .13)	18.32*	1.21	.05	1.57	.001	-.14	.05	-.25	.01	-	-	-
	-	-	-	-	-	-	-	-	-	-	.00	.01	.04	ns	-.69*	.54*	-.94*
4. Linear, T2 with T5 based on MI	9	12.81	.171	.987	.04 (.00, .08)	6.20	1.19	.05	1.77	.001	-.12	.02	-.63	.001	-.66*	-	-
5. Quad., T2 with T5 based on MI	5	8.85	.115	.987	.05 (.00, .10)	3.96	1.19	.05	1.59	.001	-.13	.05	-.30	.01	-	-	-
	-	-	-	-	-	-	-	-	-	-	.003	.01	.03	ns	-.65*	.43	-.90*
6. Final linear, T2 with T5 (time centered)	9	12.81	.171	.987	.04 (.00, .08)	-	1.07	.04	1.89	.001	-.12	.02	-.64	.001	-.46*	-	-

Note. MI = Modification indices.

Table 3

Predictive Paths between Latent Growth Curves of Intensity and Breadth

	b	SE	beta	p
(a) Predicting linear changes in breadth from the intercepts of breadth and intensity				
Intercept of breadth → Linear slope of breadth	-.25	.04	-.80	.001
Intercept of intensity → Linear slope of breadth	.02	.01	.48	.01
(b) Predicting linear changes in intensity from the intercepts of intensity and breadth				
Intercept of intensity → Linear slope of intensity	-.04	.10	-.11	<i>ns</i>
Intercept of breadth → Linear slope of intensity	1.11	.60	.39	.10
(c) Predicting quadratic changes in intensity from the intercepts and linear slopes of intensity and breadth				
Intercept of intensity → Quadratic slope of intensity	-.11	.02	-.66	.001
Linear slope of intensity → Quadratic slope of intensity	-.31	.04	-.78	.001
Intercept of breadth → Quadratic slope of intensity	.51	.17	.46	.01
Linear slope of breadth → Quadratic slope of intensity	1.37	.39	.39	.01

Final version before

Table 4

Prediction of Grade 11 Youth Outcomes by Growth Curves of Participation and Covariates

	Intensity					Breadth					
	b	SE	beta	z	p	b	SE	beta	z	p	
Academic orientation in G11						Academic orientation in G11					
Gender	-.17	.07	-.12	-2.33	.05	Gender	-.12	.07	-.09	-1.79	.10
Family income	.00	.01	.01	0.14	<i>ns</i>	Family income	.00	.01	.02	0.25	<i>ns</i>
Academic orientation in G7	.41	.04	.53	9.99	.001	Academic orientation in G7	.40	.04	.52	9.90	.001
Intercept	.04	.01	.23	2.98	.01	Intercept	.27	.08	.23	3.52	.001
Linear slope	.00	.04	.01	0.04	<i>ns</i>	Linear slope	.63	.29	.18	2.19	.05
Quadratic slope	-.02	.16	-.02	-0.10	<i>ns</i>						
Risky behaviors in G11 (ln)						Risky behaviors in G11 (ln)					
Gender	.05	.09	.03	0.51	<i>ns</i>	Gender	.06	.09	.04	0.67	<i>ns</i>
Family income	-.00	.02	-.00	-0.03	<i>ns</i>	Family income	.01	.02	.02	0.27	<i>ns</i>
Risky behaviors in G7	.40	.05	.43	7.66	.001	Risky behaviors in G7	.40	.05	.44	7.95	.001
Intercept	-.01	.02	-.05	-0.59	<i>ns</i>	Intercept	-.10	.10	-.07	-1.02	<i>ns</i>
Linear slope	-.08	.06	-.17	-1.35	<i>ns</i>	Linear slope	-.73	.38	-.16	1.94	.10
Quadratic slope	-.24	.22	-.18	-1.05	<i>ns</i>						
Internalizing problems in G11						Internalizing problems in G11					
Gender	.06	.10	.03	0.56	<i>ns</i>	Gender	-.03	.09	-.02	-0.36	<i>ns</i>
Family income	.03	.02	.09	1.34	<i>ns</i>	Family income	.03	.02	.11	1.78	.10
Internalizing problems in G7	.40	.06	.43	7.22	.001	Internalizing problems in G7	.40	.05	.42	7.63	.001
Intercept	-.04	.02	-.18	-1.92	.10	Intercept	-.19	.10	-.12	-1.83	.10
Linear slope	-.01	.07	-.02	-0.17	<i>ns</i>	Linear slope	.36	.38	.08	0.94	<i>ns</i>
Quadratic slope	-.26	.27	-.18	-0.93	<i>ns</i>						
Civic development in G11						Civic development in G11					
Gender	-.44	.10	-.26	-4.36	.001	Gender	-.41	.10	-.24	-4.34	.001
Family income	-	-	-	-	-	Family income	.00	.02	.01	0.12	<i>ns</i>
Intercept	.04	.02	.18	2.21	.05	Intercept	.37	.11	.25	3.49	.001
Linear slope	.09	.06	.19	1.54	<i>ns</i>	Linear slope	.75	.39	.17	1.90	.10
Quadratic slope	.14	.21	.11	0.66	<i>ns</i>						

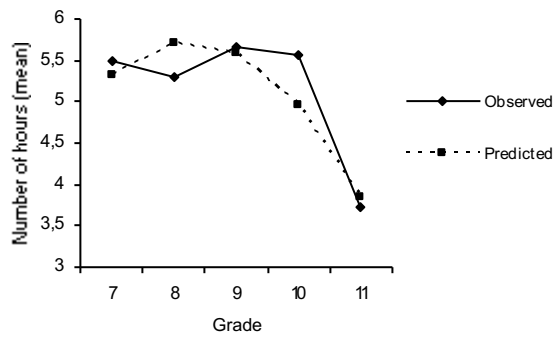
Figure caption

Figure 1. Graphs of observed and predicted values for the curves of (a) intensity and (b) breadth.

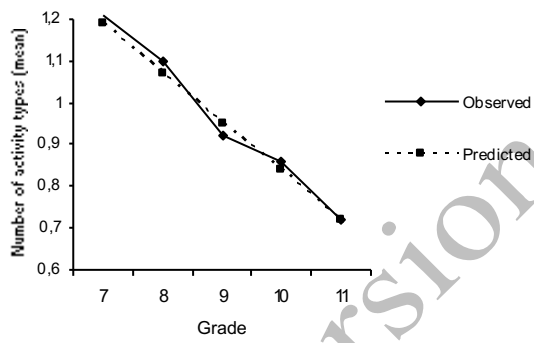
For intensity, the total number of hours spent in organized activities over the school year was divided by the total number of activities, to lower the dependency with breadth, and was also divided by ten, to facilitate model estimation.

Final version before

(a)



(b)



Final version before proofs