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The Role of Arts Participation in Students' Academic and Nonacademic Outcomes: A Longitudinal Study of School, Home, and Community Factors

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This longitudinal study draws on positive youth development frameworks and ecological models to examine the role of school-, home- and community-based arts participation in students' academic (e.g., motivation, engagement) and nonacademic (e.g., self-esteem, life satisfaction) outcomes. The study is based on 643 elementary and high school students from 15 schools conducted over the course of 2 academic years. Structural equation modeling showed that beyond sociodemographics, prior achievement, and prior variance in outcome measures, school predictors of academic and nonacademic outcomes were arts engagement and in-school arts participation; home predictors were parent–child arts interaction and home-based arts resources; and community arts predictors were participation in and attendance at arts events and external arts tuition (the latter, a negative effect). Implications for theory, policy, funding, and practice are discussed.

Keywords: arts, engagement, motivation, self-esteem, extracurricular activity

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Although research has linked arts participation with educational and developmental outcomes, much of this research simply examines frequency and duration of arts participation and does not explore dimensions in the various ecological contexts in which young people engage with the arts: school, home, and community. In a recent review of extracurricular activity by high school students, Feldman and Matjasko (2005) concluded that the arts is an important developmental setting but that relatively little is known about the contextual elements leading to positive outcomes. The present study seeks to redress this gap by focusing on the role of arts participation in youth development in (upper) elementary and high school—with particular interest in specific aspects of arts participation in the school, at home, and in the community.

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Positive Youth Development

Positive youth development is a perspective that recognizes the importance of connections between individuals and their ecological setting and how these connections form a basis for human development (Benson & Saito, 2000; Fredricks & Eccles, 2008; Lerner, 2005). It has been proposed as a perspective countering deficit perspectives on young people by suggesting that all young people have strengths (or potential to realize their strengths) and that these strengths are fostered by aligning young people with the developmental opportunities present in their social and physical ecologies (Benson & Saito, 2000; Damon, 2004; Lerner, 2005; Witt, 2002). These ecologies include, inter alia, the arts, sports, community groups/clubs, and school. The present study focused on the former—the arts—with particular interest in its relationship with young people's academic (e.g., motivation, engagement) and nonacademic (e.g., self-esteem, life satisfaction) outcomes. For the purposes of this investigation, *arts participation* encompasses school- (arts engagement, tuition), home- (parent–child arts interactions, arts resources), and community- (external tuition, arts attendance, arts participation) based activities relevant to art, dance, drama, film/media, and music (Ewing, 2010; Martin, Anderson, & Adams, 2012).

Despite receiving relatively little rigorous research attention (Benson & Saito, 2000; Ewing, 2010), participation in the arts represents a major element of in-school curriculum (Ewing, 2010; O'Toole, Stinson, & Moore, 2009) and one of the more dominant forms of out-of-school activity (Ewing, 2010). In an international review of arts curricula in 37 countries, Bamford (2006) found arts

participation was represented in all educational systems, regardless of economic development. Recently, industrialized nations have given greater policy and funding recognition to the arts in education. In the United States, for example, President Obama has argued for reinvesting in arts education (President's Committee on the Arts and the Humanities; Dwyer, 2011), leading to an increase in his 2013 budget request for the National Endowment for the Arts (2012). The Department of Culture, Media, and Sport in the United Kingdom has strengthened partnerships between schools and arts organizations to provide young people in disadvantaged areas across England enhanced opportunities to develop creativity and build their future aspirations (Creativity, Culture, & Education, 2012; Galton, 2008). Australia's Cultural Ministers Council is looking to foster greater partnerships between educational and creative sectors (Commonwealth of Australia, 2008; Donelan, Irvine, Imms, Jeanneret, & O'Toole, 2009; Gibson & Ewing, 2005). More broadly, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) has emphasized the importance of the arts in child development and education (UNESCO, 2006). Because significant policy initiatives and funding are being directed to the arts and young people's outcomes, investigating the links between the two is considered important.

Historically, there has been an uneasy relationship between the arts and education, with the arts facing numerous challenges including competition with other curriculum areas for time and space, the perception that it is less central to educational development, a lack of focus in preservice teacher education, a lack of confidence on the part of teachers to teach it, the dominance of traditional school subjects as pathways to university, the increasing presence of high stakes testing in literacy and numeracy, and—of central relevance to this investigation—a dearth of longitudinal quantitative evidence supporting its association with academic (and nonacademic) outcomes (Bamford, 2006; Ewing, 2010; O'Toole et al., 2009).

We conducted our study from a general "arts rich" (Ewing, 2010) participatory perspective. In conceptualizing young people's attendance at dance, drama, and music events, Martin et al. (2012) suggested this activity be considered in terms of a broad "youth participation" construct. Thus, for the purposes of this investigation, we explored young people's aggregate arts-related participation and do not disaggregate data by the specific form of arts in which they are involved. Consistent with much other psychoeducational research into domain-general academic motivation and engagement (e.g., see Liem & Martin, 2012, for review) rather than domain-specific motivation and engagement (e.g., Bong, 1996; Marsh, 2007), we sought to understand the nature of arts-participatory youth as an overarching construct. From a modeling perspective, we also suggest this offers a more parsimonious means of understanding the role of the arts in youth outcomes. For example, to disaggregate arts predictors as a function of multiple forms of arts across multiple modes of participation would represent a very complex set of predictor factors that may also prove difficult to model in any integrative way. For example, in the case of our study of seven modes of arts participation (discussed later), disaggregating by major forms of arts (e.g., music, dance, drama, art, film) would lead to 30–40 arts predictors and an unwieldy model.

Influential Perspectives Relevant to Positive Youth Development

There are engagement frameworks that can help explain hypothesized associations between arts participation and youth outcomes. Engagement in extracurricular activity such as the arts is a means by which young people realize positive developmental outcomes (Bohnert, Fredricks, & Randall, 2010). According to Bohnert et al., "merely attending an activity may not be sufficient for reaping the benefits of involvement" (2010, p. 593). Bohnert et al.'s approach to extracurricular activity comprises a tripartite model of engagement—behavioral (effort, attendance), emotional (interest, enjoyment), and cognitive (self-regulation) engagement (Fredricks, Blumenfeld, & Paris, 2004). High-quality extracurricular activity involves all three forms of engagement—for example, young people not only attend (behavioral) but also enjoy (emotional) and effectively self-regulate (cognitive) through the activity. Considering diverse dimensions of engagement in this way "has the potential to provide a richer characterization of children's experience" (Bohnert et al., 2010, p. 593). Another important reason for considering engagement in extracurricular activity is that it is deemed to be manipulable and, thus, a potentially important point for intervention (Fredricks et al., 2004).

From ecological and developmental systems perspectives, it is evident that the individual is an active agent in his or her own development (Bronfenbrenner, 2005; Lerner, 2005). Hence, activities in which the individual actively engages and that build skill, competence and connectedness (e.g., the arts) are activities promoting developmental outcomes. Moreover, ecological models emphasize the developmental impact of the ongoing attributes of settings in which young people operate. Pursuits such as the arts comprise school and community influences that therefore become an ecological context for development (Farb & Matjasko, 2012; Mahoney, Larson, & Eccles, 2005).

Related to this is the facilitative role that extracurricular activity (including the arts) plays in identity formation; it is through such activity that young people explore and learn more about themselves (Fredricks & Eccles, 2008; Hansen, Larson, & Dworkin, 2003). Indeed, by participating in a range of contexts, young people experience a broader range of activity-related growth experiences (Bohnert et al., 2010; Hansen et al., 2003). Similarly, the characteristics of young people who attend different activities are many and varied, and this increased exposure to different peers contributes further to social and emotional growth (Bohnert et al., 2010)—though related research finds peers may influence negative behaviors, such as increased alcohol use associated with some extracurricular activities, (Barber, Eccles, & Stone, 2001).

Research Investigating the Role of Arts Participation in Positive Youth Development

Academic and Educational Outcomes

In terms of academic outcomes, research has shown that participation in theatre and music is associated with academic engagement (Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006), and participation in arts extracurricular activity is associated with academic aspirations, university enrollment, time at university (Marsh & Kleitman, 2002), and academic achievement (Catterall,

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Dumais, & Hampden-Thompson, 2012; Vaughn & Winner, 2000). In a summary of 10 arts-based meta-analyses, Hattie (2009) found a small ($d = 0.35$) effect size for achievement. In brain-based research, positive effects of short-term music training have been found for verbal intelligence and changes in functional brain plasticity during an executive function task (Moreno et al., 2011). Likewise, Deasy (2002) in a synthesis of more than 50 studies identified significant links between the arts and cognitive capacity. Notwithstanding these positive results, not all research has shown such links between the arts and academic outcomes; Shulruf, Tuman, and Tolley (2008) found mixed evidence for extracurricular activity as a whole and a negative link between arts participation and numeracy. In a meta-analysis by Winner and Cooper (2000; see also Winner & Hetland, 2000), there were positive correlations between arts participation and academic outcomes, but no evidence of causal links.

Nonacademic, Psychological, and Developmental Outcomes

For nonacademic outcomes, activities such as the arts may offer opportunities for youth to explore and build other skills and abilities, and this may be associated with identity-related developmental competence that may be helpful for self-esteem, life satisfaction, and a sense of meaning and purpose (Rose-Krasnor et al., 2006; Shanahan & Flaherty, 2001). It may also be associated with greater self-determination and personal initiative (Larson, Hansen, & Moneta, 2006; Shernoff & Vandell, 2007). The results of six Australian mixed-methods arts research projects found that arts participation was correlated with developing relationships of trust, feelings of belonging, and empathy (Hunter, 2005). In qualitative work on nonacademic outcomes, students participating in the arts increasingly saw themselves as part of a larger local community, felt they had contributed to that community, and had a greater sense of meaning and purpose (Caldwell & Witt, 2011). On a related note, participation in the arts has been linked to greater civic engagement (Catterall et al., 2012). Taken together, prior research has indicated significant associations between arts participation and various academic and nonacademic outcomes.

The Ecological Context of Arts Participation Related to Educational and Developmental Outcomes

According to positive youth development conceptualizing, developmental assets and opportunities are realized through aligning young people with their social and physical ecologies to better meet needs related to specific developmental tasks (Lerner, 2005; Theokas & Lerner, 2006). Three major contexts that represent young people's social and physical ecologies are school, home, and community.

School-Based Arts Participation

Gerber (1996) found that school-based extracurricular activity was more strongly associated with academic achievement than out-of-school activities. A review by Marsh and Kleitman (2002) found the same and cited this as support for the identification/commitment hypothesis in which context-specific activity impacts one's identification with and commitment to outcomes in that context. Thus, consistent with prior research into the arts, our investigation examined the amount of time spent studying arts subjects at school in a given school week and its links to academic and nonacademic outcomes.

We also studied students' engagement in these arts subjects. Engagement has been described as a relatively neglected factor in youth activity research (Bartko, 2005; Bohnert et al., 2010; Weiss, Little, & Bouffard, 2005). According to Bohnert et al. (2010), engagement may enable a more nuanced understanding of young people's extracurricular experience than simply assessing the amount or presence of this activity. The importance of assessing engagement in the arts lies in the fact that individuals can be present at an activity but may not be qualitatively connected to that activity (Bohnert et al., 2010). Engagement comprises cognitive, affective, and behavioral dimensions (Bohnert et al., 2010). Affective engagement has been assessed via valuing, interest and enjoyment; cognitive engagement via self-efficacy; and behavioral engagement via persistence (Mahoney, Lord, & Carryl, 2005; Shernoff & Vandell, 2007). Indeed, these youth activity engagement dimensions have been linked to academic outcomes (Mahoney et al., 2005; Shernoff, 2010). Notwithstanding these studies into extracurricular activity more broadly, no researchers (to our knowledge) have sought to understand the role of cognitive, affective and behavioral arts engagement in academic and nonacademic outcomes—and we sought to do so in the present study.

Home-Based Arts Participation

The arts-relevant role of the home may also be important. For example, perceived parental support positively predicts young people's extracurricular involvement and their affective experience of it (Anderson, Funk, Elliott, & Smith, 2003)—and so it might therefore be speculated that this is one means by which the arts may be associated with enhanced educational and developmental outcomes. Family support has been linked to children's receptive arts participation (attendance; Martin et al., 2012), enjoyment of arts participation (Anderson et al., 2003), and early familial exposure to the arts is associated with sustained attendance (Oskala, Keaney, Chan, & Bunting, 2009). Barrett and Smigiel (2003) showed that a supportive family, encouraging involvement in the arts outside school, is more influential than the child's enjoyment of the arts at school. Accordingly, researchers have included family/parent factors in studies of extracurricular (including arts) participation (Anderson et al., 2003). It is interesting, however, that Anderson et al. (2003) found that parent support was positively correlated with arts enjoyment, whereas parent pressure was not positively connected to arts enjoyment. Accordingly, in the present study we explored home-based arts participation through measures of parent–child arts interaction and home arts-related resources and support.

Community-Based Arts Participation

For the purposes of the present study, *community-based arts participation* is that which is not located in school or in the home. When considering arts participation in this context, one important distinction is that between receptive arts participation (e.g., attendance at arts events, arts appreciation) and active arts participation (making or doing the arts or arts forms; Martin et al., 2012).

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The relative merits and importance of each have been subjects of debate within the arts (Seidel, Tishman, Winner, Hetland, & Palmer, 2009), with some commentators arguing for the centrality of receptive arts participation (e.g., Reimer, 2003) and others arguing that active arts participation is more fundamental to youth development (e.g., Elliott, 1995). Cuypers et al. (2011) found that in adult populations, receptive arts participation and active arts participation both are significant predictors of mental health and life satisfaction. However, in the Cuypers et al. study, active arts participation was a stronger predictor of outcomes than receptive arts participation. Lacking is a research design among youth that directly juxtaposes the two, controls for their shared variance to establish unique effects attributable to each, and explores these issues in terms of young people's academic and nonacademic outcomes. The present study addresses this knowledge gap. Another form of community-based arts participation involves external arts-related tuition. Martin et al. (2012) found that attending arts classes outside school hours predicted arts participation among high school students, but not a great deal has been done to investigate its links with academic and nonacademic outcomes. This is important in its own right as a form of community-based involvement and as an important factor alongside its school counterpart (in-school arts tuition), also modeled in this study.

Conceptual and Operational Frameworks

Although much research into the extracurricular and leisure activity tends to be very applied, some researchers have provided conceptual frameworks that seek to explain the processes by which extracurricular impacts take place. For example, Benson and Saito (2000) proposed a conceptual framework that comprises (a) the context relevant to youth activity (e.g., ethnicity, gender), (b) youth activity in various ecological contexts (e.g., school, home, community), (c) developmental strengths (e.g., motivation, engagement, identity), and (d) broad health and well-being outcomes (e.g., thriving behavior, reduction of risk behavior). A more recent framework is offered by Bohnert et al. (2010). According to them, (a) there are sociodemographic and individual factors relevant to extracurricular activity participation, (b) youth participation comprises various contextual (e.g., in-school, family, community) and engagement (cognitive, behavioral, affective) attributes, (c) this participation predicts youth outcomes (e.g., academic and psychological), and (d) youth program characteristics (e.g., quality, amount) moderate Parts 2 and 3 of the framework. Taken together, there are common elements across both models: background characteristics, salient youth contexts, psychoeducational and/or psychobehavioral factors such as engagement, and important developmental outcomes. These common elements are major parts of the present study. Specifically, this study models arts participation effects through operationalization of sociodemographic variables, arts participation in major youth contexts (home, school, community), arts engagement, and academic and nonacademic outcomes. Figure 1 illustrates.

To this conceptual and operational framework, we would add the issue of time. Later refinements of the ecological model included the impact of the passage of time in young people's development (referred to as the *chronosystem*; Bronfenbrenner, 2001). For the present study, understanding the role of arts predictors is enhanced through a research design in which prior variance in the dependent measures is accounted for (MacCallum & Austin, 2000; Martin, 2011). In fact, very few studies

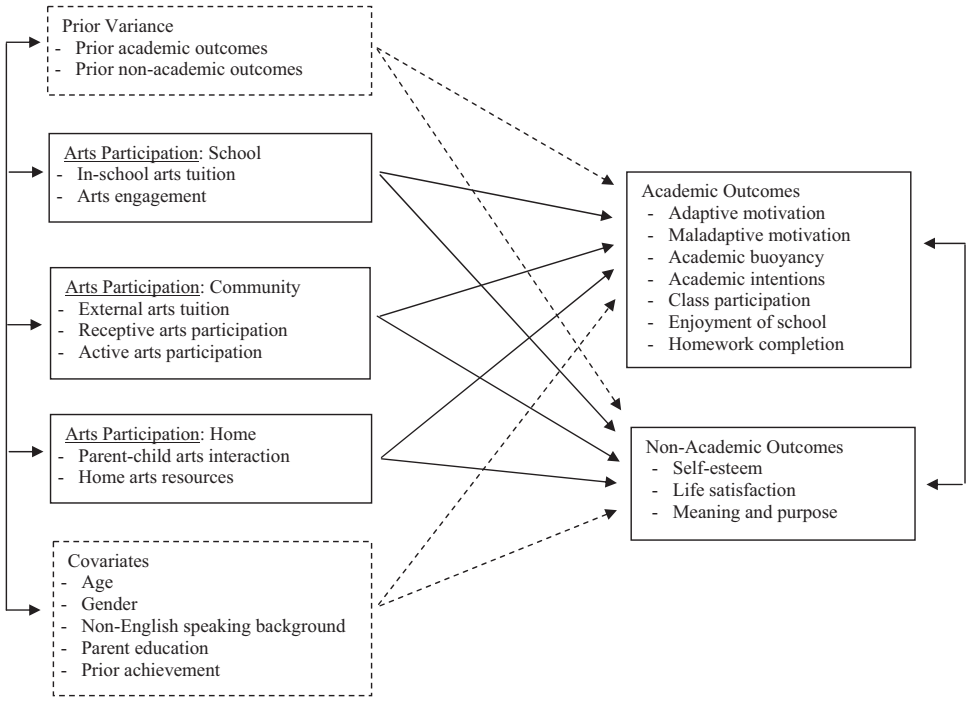

Figure 1. Hypothesized model of arts participation factors predicting academic and nonacademic outcomes, controlling for prior variance and sociodemographic and prior achievement covariates.

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into arts participation adopt a longitudinal approach to estimating its role (Ewing, 2010; Shulruf et al., 2008). Fredricks and Eccles (2008) have suggested that in the absence of longitudinal data, youth participation effects may be overstated.

The present approach to modeling these longitudinal data is through the estimation of autoregressive paths (though this does not ensure causal effects because youth have typically selected into arts participation; thus, there is a need to understand what factors are related to youth selecting into activities to better identify causal links). Autoregressive paths link variables at Time 1 with corresponding variables at Time 2 (i.e., the path between Time 1 academic motivation and Time 2 academic motivation). Then, arts factors predicting Time 2 outcomes can be more properly viewed as predictive of gains or declines because they represent positive or negative residuals partialed of prior variance (Martin, 2011). Hence, incorporating time in our design enables us to examine gains or declines on the outcome measures, having controlled for Time 1 variance in these outcome measures. Figure 1 shows details. Including pretest variables for each outcome variable (including the academic motivation and engagement measures) is also important for interpreting some of arts participation factors. For example, the arts engagement factors are modeled controlling for prior general academic motivation and engagement. In so doing, we hoped to better partial arts engagement from general academic engagement.

Academic and Nonacademic Outcomes

The research reviewed has identified significant links between arts participation and academic outcomes such as motivation and engagement. Indeed, Winner and Cooper (2000) suggested that studying the arts may be associated with greater engagement in school, which then impacts achievement. Accordingly, in this study, our academic interest was the relationship between arts participation and students' academic motivation and engagement. Similarly, significant links have been identified across nonacademic outcomes such as self-esteem, sense of purpose, and life happiness. However, also as noted, despite the positive findings for the arts, there are significant gaps in these literatures. For example, there is little longitudinal data that appropriately controls for prior variance in outcomes; specific home, school, and community dimensions of participation are not assessed concurrently; academic and nonacademic outcomes are often not included in the one analytic design; research does not often assess both elementary and high school students; and designs do not always adjust for the presence of relevant covariates. The present study redresses these gaps with a focus on academic and nonacademic outcomes. Academic outcomes include motivation (via adaptive factors such as mastery orientation and maladaptive factors such as self-handicapping—e.g., procrastination), engagement (via cognitive, affective, and behavioral factors such as academic intentions, enjoyment of school, and class participation, respectively), and educational resilience (via academic buoyancy—i.e., dealing with academic setback and adversity). Nonacademic outcomes include self-esteem, life satisfaction, and sense of meaning and purpose.

Understanding "Unique" Variance in Arts Participation: The Role of Covariates

Researchers have sought to control for various sociodemographic factors to better understand positive youth development. It has been recommended that the effects of youth participation on outcomes be explored in the context of background characteristics (Farb & Matjasko, 2012). Our study included gender, age, language background, parent/caregiver education, and prior achievement as covariates. Each of these has been significantly related to arts participation or relevant to the association between arts education and youth outcomes. In relation to *gender*, males are found to be less likely to be involved in clubs involving the arts (Kort-Butler & Hagewen, 2011). Other studies have shown significant gender effects for arts preferences, with females reporting more positive preferences than males (Barnett, 2006). In terms of age, Martin et al. (2012) found a positive correlation between age and receptive arts participation; however, Rose-Krasnor et al. (2006) did not find evidence of an age-related presence in extracurricular activity. For *language background, ethnicity, and race*, some researchers have found ethnic and language background differences in leisure preferences (Gómez, 2002); others have found no significant language background and ethnic effects in general leisure activity preferences (Barnett, 2006) but when disaggregating findings by arts participation, there are such effects. In relation to *socioeconomic indicators*, there are links between socioeconomic indicators and participation in organized youth activity, with most research showing greater participation by young people from more advantaged households in such activities (Antshel & Anderman, 2000), including in the arts (Martin et al., 2012). Finally, *prior achievement* is a factor to disentangle from the arts–outcomes link. Some research has found that high achievers tend to self-select into the arts (Winner & Cooper, 2000).

The Present Study

Although it has received relatively little multivariate research attention, participation in the arts represents a major element of in-school curriculum and one of the most dominant forms of out-of-school activity. It is, therefore, a potentially important in-school and out-of-school activity relevant to children's and young people's educational and developmental pathways. There has also been little longitudinal research of arts participation across academic and nonacademic outcomes among elementary and high school students. We sought to address the following research questions: (a) What is the link between arts participation and academic (e.g., motivation) and nonacademic (e.g., self-esteem) outcomes, beyond sociodemographics and prior achievement? (b) What is the relative salience of specific forms of arts participation—school (arts tuition, engagement), home (parent–child arts interaction, arts resources), and community (external arts tuition, participation and attendance in arts events)—in predicting academic and nonacademic outcomes? In attending to these research questions, we implemented a longitudinal survey-based design (two measurement waves, 1 full academic year apart) with students from Grade 5 to Grade 11 in 2010 and then to the same students from Grade 6 to Grade 12 in 2011. Given the current policy and funding focus on the arts, the ongoing reality of the arts having to "compete" for curriculum time and space, and the lack of precise

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understanding of how the arts may be linked to academic and nonacademic outcomes, there is a need for research that more fully investigates its role.

Method

Participants

The sample comprised 643 elementary and high school students from 15 schools on the east coast of Australia. Students were surveyed once in the final term of 2010 and again in the final term of 2011 (1 full academic year later). In 2011, a total of 27% were in elementary school (Grade 6), 46% were in middle high school (Grades 7–9), and 27% were in senior high school (Grades 10–12). At Time 1, the number of students who completed the surveys was 1,172, and at Time 2, the number was 1,162. However, not all these students could participate at both testing rounds. For example, there were students in Grade 5 at Time 2 who were not part of the sampling frame at Time 1 (i.e., no Grade 4 students were surveyed); there were students in Grade 12 at Time 1 who had graduated by Time 2; there were students in Grade 6 at Time 1 who at Time 2 had moved to middle high school (Grade 7) outside the sampling frame; and there were students in Grade 7 at Time 2 who were new to the high school and not part of the sampling frame at Time 1. Given these and related factors, the test–retest response rate was 73%, yielding $N = 643$. Thus, technically, students are not missing at random; however, their "missingness" is very typical of most longitudinal studies conducted in schools across grade levels. Comparing mean-level differences between students present at only one time with students present at both times (controlling for the covariates in the study), no significant effects were found on any of the dependent measures ($p > .05$). Thus, both groups of students can be considered reasonably comparable.

Schools were from all three major educational sectors—independent (four schools), government (nine schools), and systemic Catholic (two schools). They were selected on the basis of their emphasis on one or more of the five major arts areas (art, dance, drama, film/media, and music) so that across the sample, each arts form was well represented (though most schools in the education system specialize in or emphasize at least one arts form across the various arts curriculum areas). Two of the high schools were single-sex (one all girls and one all boys), and 13 were coeducational. Just under half (45%) of the sample was male; 55% was female (in the online supplemental materials, we show that central findings were invariant across gender). At Time 1, ages ranged between 10 and 18 years, with a mean age of 12.61 years ($SD = 1.77$) and at Time 2, between 11 and 19 years, with a mean age of 13.35 years ($SD = 1.74$). All students in Grades 6–12 were invited to participate. Two schools were located in nonurban areas and 13 were in major urban areas. One school was a performing arts selective high school, and one was an academically selective high school (in the online supplemental materials, we show that central findings were invariant across the performing arts selective school and other schools). Based on the postcodes of schools, the Australian Bureau of Statistics mean index of relative advantage and disadvantage was 1070, which is marginally above the average index for the nation (1000). One in five (21%) students was from a language background other than English (non-English speaking background). Fourteen percent of parents did not complete school, 19% completed the highest level of school (Grade 12 or equivalent), 16% completed college (certificate/diploma), and 40% completed university (in the online supplemental materials, we show that central findings were invariant across parent education). Based on these sample attributes, the selection of students and schools for this study can be considered a broad cross-section of schools in its spread of type, region, prior achievement, socioeconomic status, language background, and gender composition.

Procedure

Procedures at Time 1 (2010) and Time 2 (2011) were identical. Once ethics approval was obtained from the University of Sydney's Human Research Ethics Committee (for all schools), the Department of Education and Training (for government schools), and the Catholic Education Office (for systemic Catholic schools), school Principals were formally invited to participate in the research. Principals then nominated a liaison person for each school who was responsible for survey administration. Participants were under the age of 18 years, and so parental permission was required. Before commencing the questionnaire, students were requested to provide the first two letters of their surname, the first two letters of their given name, their month of birth, and the last two digits of their home phone number. This identifying code was used to track students 1 year later and allowed for participant anonymity. In elementary schools, classroom teachers were encouraged to read the questionnaire items aloud to students; this was not necessary at the high school level. Students were given approximately 45 min to complete the survey.

Materials

Instrumentation encompassed measures of (a) participation in arts education, (b) academic outcomes, (c) nonacademic outcomes, and (d) background and general characteristics. We assessed the psychometric and distributional properties of instrumentation through confirmatory factor analysis (CFA) to test factor structure, reliability to assess internal consistency (via Cronbach's alpha) and test–retest stability (via correlations), and skewness and kurtosis to explore distributional properties. CFA was performed with Mplus Version 7.0 (Muthén & Muthén, 2012). Scale means, standard deviations, distributional (skew, kurtosis) properties, and reliability are presented in Table 1. Means and standard deviations for academic and nonacademic outcomes are in line with those in prior research (Green, Martin, & Marsh, 2007; Martin, 2007, 2009; Martin & Marsh, 2008). Skewness values are less than 2, and kurtosis values are less than 7, indicating approximately normal distribution. For each psychometric scale (including arts engagement), reliability was assessed via Cronbach's alpha. Table 1 indicates all coefficients are higher than .65, the minimum criterion for internal consistency. For each arts factor (but not arts engagement), reliability was assessed through test–retest correlations. Table 1 indicates coefficients higher than .47 (most above .60), except for in-school arts tuition (because many students study different arts subjects across a year at school—see Table 1 note). In the online supplemental material, we also present descriptive and reliability statistics of each age group for each dependent measure. To test dimensionality and factor structure of all psycho-

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Table 1
Descriptive and Reliability Statistics

Variable	No. of items	*M*	*SD*	Skewness	Kurtosis	Reliability
Indicators						
Receptive arts participation	11	1.66	0.38	1.23	3.28	.63
Active arts participation	9	1.94	0.53	0.49	−0.15	.68
Parent–child arts interaction	10	2.01	0.75	0.97	0.84	.61
Home arts-related resources	6	1.33	0.28	0.43	−0.76	.66
External arts tuition	5	1.82	0.59	0.67	0.47	.47
In-school arts tuition	5	1.76	0.49	0.63	0.95	.24
Arts engagement scale	15	4.51	1.23	−.31	−0.31	.88
Sociodemographic factors						
Gender (female/male)	1					
Age	1	13.35	1.74	0.42	−0.65	—
Non-English-speaking (no/yes)	1					
Parent education	2	4.39	1.45	−0.39	−1.18	.79
Prior achievement	2	0.00	1.00	−0.44	0.39	.81
Time 1						
Adaptive motivation	6	5.58	0.81	−0.59	0.11	.86
Maladaptive motivation	2	2.27	1.04	0.83	0.10	.72
Academic buoyancy	4	4.84	1.22	−0.53	0.15	.75
Academic intentions	4	6.12	0.84	−1.43	2.83	.70
Enjoy school	4	5.81	1.22	−1.59	2.80	.91
Class participation	4	5.62	1.08	−0.84	0.65	.88
Homework completion	4	4.36	0.74	−1.14	1.40	
Self-esteem	4	5.68	1.02	−0.93	1.19	.78
Meaning and purpose	4	5.34	1.18	−0.77	0.64	.80
Life satisfaction	4	5.38	1.10	−0.90	1.25	.77
Time 2						
Adaptive motivation	6	5.49	0.82	−0.51	−0.19	.86
Maladaptive motivation	2	2.37	1.14	0.86	0.26	.78
Academic buoyancy	4	4.79	1.26	−0.45	0.04	.81
Academic intentions	4	6.09	0.95	−1.54	2.84	.79
Enjoy school	4	5.70	1.22	−1.12	1.12	.89
Class participation	4	5.59	1.12	−0.98	1.28	.90
Homework completion	4	4.24	0.82	−1.13	1.33	
Self-esteem	3	5.60	1.02	−0.96	1.39	.76
Meaning and purpose	4	5.26	1.29	−0.91	0.70	.83
Life satisfaction	4	5.36	1.09	−0.90	1.59	.77

Note. $N = 643$. Except for arts engagement, all arts factors are single indicators based on frequencies and tallies. Except for arts engagement, reliabilities for arts factors are test–retest correlations (the test–retest coefficient for in-school arts participation is relatively low because many students study different arts subjects across the course of a year). All sociodemographic, prior achievement, and homework factors are single indicators. Distribution statistics are not reported for nominal variables gender and non-English language background.

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metric factors, we performed confirmatory factor analysis. There was a good fit to the data, $\chi^2(2349) = 4{,}537.20$, comparative fit index (CFI) = .91, root-mean-square error of approximation (RMSEA) = .04. Factor loading ranges and means are satisfactory, with a mean loading range from .63 (for positive intention) to .83 (class participation). Tables 2 and 3 present Time 1–Time 2 correlations and correlations among arts participation and covariate factors. As described later, due to the large number of parameters relative to sample size, composite scores are the basis of correlation analyses.

Arts participation. Arts participation comprised numerous indicators: receptive arts participation, active arts participation, parent–child arts interaction, home arts-based resources, external arts tuition, in-school arts tuition, and arts engagement. We do so from a general *arts-rich* (Ewing, 2010) participatory perspective. That is, for the purposes of this investigation, we explored young people's aggregate arts-related participation and did not disaggregate findings by the specific form of arts in which they are involved (see Discussion for implications).

Receptive arts and active arts participation. We assessed (out-of-school) receptive arts participation and active arts participation through two scales using items adapted from the Programme for International Student Assessment (PISA) 2000 student survey (Organisation for Economic Co-operation and Development, 2000)—and consistent with the U.S. National Education Longitudinal Study (NELS; National Center for Education Statistics, 2012). For receptive arts participation in a section referring to "out-of-school arts participation and education," 11 items were asked, each representing an attendance dimension of the arts (e.g., "During the past year, how often have you gone to the art gallery?" "During the past year, how often have you gone to the opera?" and "During the past year, how often have you attended a jazz/blues concert?"). For active arts participation in the out-of school participation and education section, nine items were asked, each representing an active form of arts activity (e.g., "During the past year, how often have you played a musical instrument?" "During the past year, how often have you performed in a play or in live theatre?" and

Table 2
Correlations Among Arts Participation, Sociodemographics, Prior Achievement, Academic Outcomes, and Nonacademic Outcomes

Variable	Academic outcomes							Nonacademic outcomes		
	Adaptive motivation	Maladaptive motivation	Academic intentions	Academic buoyancy	Enjoy school	Class participation	Homework completion	Self-esteem	Meaning and purpose	Life satisfaction
Time 1–Time 2	.64***	.51***	.73***	.54***	.57***	.57***	.58***	.61***	.52***	.47***
Receptive arts participation	.12	−.06	.15***	.05	.13***	.21***	.02	.14*	.14**	.17**
Active arts participation	.23***	−.21***	.26***	.09	.14***	.24***	.20***	.26***	.16**	.17**
Parent–child arts interaction	.21***	−.16***	.25***	.03	.16***	.23***	.16***	.19**	.14**	.20***
Arts home resources	.21***	−.22***	.31***	.01	.14***	.20***	.18***	.19***	.10*	.13**
External arts tuition	.07	−.07*	.09*	.03	.01	.11***	.04	.09	.17***	.05
In-school arts tuition	.19**	−.12*	.19***	.13**	.14	.16***	.16*	.18***	.22***	.14**
Arts engagement	.39***	−.27***	.29***	.24***	.25***	.34***	.20**	.31***	.31***	.26***
Gender (F/M)	−.04	.01	−.02	.13***	−.01	.02	−.06	.05	−.03	.10***
Age	−.11	.11	.03	−.13**	−.09	−.05		−.06	−.01	−.04
Non-English-speaking (N/Y)	.11	−.03	.11	.03	.01	.01	.07	−.01	.10*	.02
Parent education	.11*	−.21***	.25***	.01	.09*	.19***	.17**	.14*	.03	.13**
Prior achievement	.21***	−.29***	.32***	.04	.12***	.20***	.27***	.34***	.08	.24***

Note. $N = 643$. F/M = female/male; N/Y = no/yes.
* $p < .05$. ** $p < .01$. *** $p < .001$.

"During the past year, how often have you sung in a concert?"). For all 20 items, frequency ratings were made, with 1 equating to *never or hardly ever* and 4 equating to *more than four times a year*. Receptive arts participation and active arts participation scores were developed by finding the mean frequency rating for each participation dimension.

Parent–child arts interaction. Students were asked 10 items about the frequency of discussion and interaction in the home (or with their parents/caregivers) about art, dance, film/media, music and theatre (e.g., "In general, how often do your parents discuss art with you?" "In general, how often do your parents listen to or discuss popular music with you?" and "In general, how often do your parents discuss film/cinema with you?"). Frequency ratings were made, with 1 equating to *never or hardly ever* and 5 equating to *several times a week*. A parent–child arts interaction score was developed by finding the mean frequency rating for the set of items.

Home arts-based resources. Arts participation was also considered in terms of the arts-based resources in the home. Adapted from the PISA 2000 survey (Organisation for Economic Co-operation and Development, 2000), a tally for each student was derived from no/yes responses to items regarding the student's access to objects such as film-making equipment, a musical instrument, dance equipment, books of plays, books of poetry, and so on (e.g., "In your home, do you have musical instruments?"). In a sense, then, our measures of parent- and home-based involvement might be considered *receptive* involvement more than *active* involvement.

In-school tuition and external tuition. For each of the five arts subject domains under focus (art, dance, drama, film/media, and music; see Ewing, 2010), students were asked about the frequency of participation during school time (e.g., "On average, how much time do you spend each week during school time in these subject areas?"). For external tuition, the same item was asked for each of the five arts subject domains outside school hours (e.g., "On average, how much time do you spend each week outside of school in these subject areas?"). For both in-school tuition and external tuition, frequency was rated from 1 (*no time*) to 4 (*3 hr or more a week*). In-school tuition and external tuition frequency scores were developed by finding the mean frequency

Table 3
Correlations Among Arts Participation, Sociodemographics, and Prior Achievement

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Receptive arts participation	—											
2. Active arts participation	.46***	—										
3. Parent–child arts interaction	.61***	.55***	—									
4. Home arts resources	.35***	.42***	.41***	—								
5. External arts tuition	.42***	.51***	.48***	.29***	—							
6. In-school arts tuition	.18***	.38***	.30***	.16*	.47***	—						
7. Arts engagement	.18***	.45***	.28***	.20***	.33***	.37***	—					
8. Gender (F/M)	.02	−.05	−.07	.03	−.06	−.16**	−.14**	—				
9. Age	.11*	−.22***	.12**	.14*	.01	−.24*	−.34***	.02	—			
10. Non-English-speaking (N/Y)	−.16***	−.01	−.12**	−.12*	−.01	.14*	.17**	.01	−.21*	—		
11. Parent education	.23***	.27***	.23***	.43***	.13**	.12	.06	.14	−.06	−.06	—	
12. Prior achievement	.11***	.25***	.18***	.27***	.13**	.10**	.11*	.13	−.04	.01	.37***	—

Note. $N = 643$. F/M = female/male; N/Y = no/yes.
* $p < .05$. ** $p < .01$. *** $p < .001$.

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rating for the set of items of each dimension. Based on averages from the rating scale, respondents reported 1–3 hr in external music tuition and 1–3 hr music tuition at school; up to 1 hr in external drama tuition and up to 1 hr in drama tuition at school; up to 1 hr external art tuition and 1–3 hr art tuition at school; up to 1 hr external dance tuition and up to 1 hr in dance tuition at school; and up to 1 hr in external film tuition and up to 1 hr in film tuition at school.

Arts engagement. Arts engagement was assessed through cognitive ("I believe I can do a good job in this subject/activity"), affective ("I'm happy to continue with this subject/activity through my schooling") and behavioral ("I persist at this subject/activity even when it is challenging or difficult") engagement items for each of the five curriculum domains art, dance, drama, film/media, and music (Ewing, 2010). These items are consistent with other engagement work on emotional engagement via valuing, interest, and enjoyment; cognitive engagement via self-efficacy; and behavioral engagement via persistence (Mahoney et al., 2005; Martin, 2009; Shernoff & Vandell, 2007). For each item, students rated themselves on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). General academic and domain-specific (e.g., in music) versions of these items have previously been administered and validated (Martin, 2008, 2009). Because these three indicators evinced high intercorrelations (mean corrected item-total correlation = .55), the possibility of collinearity problems is increased when they are used as predictors—and so we estimated them as one engagement factor. Further, because the study was conducted across the arts as a broad curricular area and not by specific arts dimensions, we collapsed items across domains. An important aspect of our research design is inclusion of pretest variables for each outcome measure—including the academic motivation and engagement measures. Thus, we modeled the arts engagement factors, controlling for prior general academic motivation and engagement. In so doing, we hoped to better partial arts engagement from general academic engagement.

Academic outcomes.

Motivation. Academic motivation was assessed via the adaptive motivation and maladaptive motivation scales of the Motivation and Engagement Scale (MES; (Martin, 2009, 2010). The MES is an instrument that measures students' motivation on adaptive and maladaptive dimensions of motivation. Adaptive motivation comprises self-efficacy (e.g., "If I try hard, I believe I can do my schoolwork well"), mastery orientation (e.g., "I feel very pleased with myself when I do well at school by working hard"), valuing school (e.g., "Learning at school is important"), persistence (e.g., "If I can't understand my schoolwork at first, I keep going over it until I do"), planning (e.g., "I try to plan things out before I start working on my homework or assignments"), and task management (e.g., "When I study, I usually try to find a place where I can study well"). Maladaptive dimensions are self-handicapping (e.g., "I sometimes put assignments and study off until the last moment, so I have an excuse if I don't do so well") and disengagement (e.g., "I've pretty much given up being involved in things at school"). For each item, students rated themselves on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). The MES has demonstrated a sound factor structure, comprising reliable dimensions that are approximately normally distributed, significantly associated with literacy, numeracy and achievement at school, and sensitive to age- and gender-related differences in motivation and engagement (Green et al., 2007; Liem & Martin, 2012; Martin, 2007, 2008, 2009).

Additional engagement measures. Alongside the MES were additional engagement measures that have been effective in capturing an expanded range of academic engagement factors (e.g., see Green et al., 2007; Martin, 2007, 2008, 2009). These included academic intentions/aspirations (e.g., "I intend to complete school"), academic buoyancy (e.g., "I don't let study stress get on top of me"), school enjoyment (e.g., "I enjoy being a student at this school"), class participation (e.g., "I participate when we discuss things in class"), and homework completion ("How often do you do and complete your homework/assignments?"). For each of the four former scales, students rated themselves on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). For the homework completion item, students scored themselves on a 1 (*never*) to 5 (*always*) rating scale. These factors have demonstrated a sound factor structure and comprise reliable dimensions that are approximately normally distributed and significantly associated with outcomes at school (Green et al., 2007; Liem & Martin, 2012; Martin, 2007, 2008).

Nonacademic outcomes. Nonacademic measures comprised self-esteem, sense of meaning and purpose, and satisfaction with life. To all measures, students were asked to rate each statement on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale.

Self-esteem (e.g., "Overall, most things I do turn out well"). This item examined participants' overall evaluation of their self-worth. These items were drawn from the General Self-Esteem Scale of the Self-Description Questionnaire II (Marsh, 2007). The General Self-Esteem Scale has previously demonstrated high reliability (Marsh, 2007).

Sense of meaning and purpose (e.g., "My personal beliefs give meaning to my life"). This scale measured participants' sense of meaning and purpose in their life. These items were drawn from the World Health Organization Quality of Life instrument (World Health Organization Quality of Life [WHOQOL] Assessment Group, 1998). It has previously shown sound reliability (WHOQOL Assessment Group, 1998).

Satisfaction with life (e.g., "In most ways my life is close to my ideal"). This scale assessed participants' satisfaction with their life in general. The items were derived from the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The scale has previously demonstrated good reliability (Pavot & Diener, 1993).

Sociodemographic and prior achievement covariates. Two major covariates were included in the study: sociodemographic factors and prior achievement. *Sociodemographic data* were collected on gender (0 = female, 1 = male), age, language spoken at home (0 = English speaking, 1 = non-English speaking), and parent/caregiver highest level of education (1 = *did not complete school*, 2 = *completed school*, 3 = *completed a college certificate/diploma*, 4 = *completed university degree*). *Prior achievement* was based on students' results in annual nationwide assessment of literacy and numeracy (National Assessment Program in Literacy and Numeracy, NAPLAN) that is administered by the Australian Curriculum, Assessment and Reporting Authority (2012). NAPLAN is a nationally standardized test for which school students receive a score for literacy and numeracy. In this study, an achievement factor was formed by the two literacy and numeracy scores.

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Data Analysis

Maximum likelihood with robustness to nonnormality and nonindependence of observations (Muthén & Muthén, 2012) was the method of estimation used for central modeling in this study as it is generally regarded as a robust method with moderate to large sample sizes (Hoyle, 1995) and when ordered categorical variables are treated as continuous variables (Lubke & Muthén, 2004). We adopted a conservative approach by adjusting for clustering within schools through the Mplus cluster command under the complex method. This procedure provides adjusted standard errors and so does not bias tests of statistical significance due to clustering of students within schools (Muthén & Muthén, 2012). We recognize recommendations vary on the minimum number of groups for multilevel adjustments but note simulation research suggesting a minimum of 10 groups will not unduly affect Level 1 parameters (Maas & Hox, 2005; see also Snijders & Bosker, 1999, on minimum Level 2 units)—parameters that are modeled in the present study.

A problem that can occur when modeling longitudinal data using structural equation modeling (SEM) relates to the many parameter estimates relative to the sample size, leading to a lack of stability in parameter estimation (Holmes-Smith & Rowe, 1994). Relative to the many items and parameters across 2 years in the study, this posed an issue for the present sample size. Composite score-based SEM counters this issue (Holmes-Smith & Rowe, 1994; Rowe & Hill, 1998) by retaining the structural components of the central model and excluding most of the measurement components. Here, a proportional factor score regression weight (κ) is created from the congeneric (one-factor) model solution (Holmes-Smith & Rowe, 1994; Rowe & Hill, 1998). The factor loading (λ) and the measurement error variance (θ) are fixed using the weighted composite score reliability (ρ) of the target factor. Calculating the square-root of ρ gives the factor loading, while subtracting ρ from 1 gives the measurement error variance (see Holmes-Smith & Rowe, 1994; Raykov, 2009; Rowe & Hill, 1998). Using these values, for each latent factor we modeled a factor score as a single indicator with factor loadings and error variance fixed to minimize measurement error and increasing the reliability (and validity) of the computed scores. These scores have been referred to as *maximally reliable* composite scores appropriate for fitting SEMs (Jöreskog & Sörbom, 2006). They applied to the dependent variables (composed of psychometric items) but not to the arts predictors, which were not intended to reflect latent constructs.

SEMs proceeded in three steps. In the first step, Time 1 (2010) outcome factors were entered as predictors of Time 2 (2011) factors. This represents the autoregression component of the model and partials out prior variance to allow one to better ascertain unique effects relevant to arts participation (see MacCallum & Austin, 2000; Martin, 2011). Autoregressive paths link variables at Time 1 with corresponding variables at Time 2 (i.e., the path between Time 1 academic motivation and Time 2 academic motivation). Then, arts factors predicting Time 2 outcomes can be more properly viewed as predictive of gains or declines because they represent positive or negative residuals partialed out of prior variance (Martin, 2011). In Step 2, sociodemographic and prior achievement covariates were entered as predictors of Time 2 outcomes. In the third step, arts predictors are entered to allow arts participation variance beyond sociodemographic and prior achievement variance to be ascertained. All three multivariate models are fully forward, with all paths from predictors to outcomes freely estimated. As such, the CFI is 1.00 for all three SEM models.

Missing Data

Missing data are a potential problem, especially when the amount of missing data exceeds 5% (e.g., Graham & Hoffer, 2000). Research has identified potential problems with listwise, pairwise, and similar substitution approaches to missing data (Graham & Hoffer, 2000), leading to recommendation of the expectation maximization algorithm (EM algorithm), as operationalized in this study using LISREL Version 8.80 (Jöreskog & Sörbom, 2006). In the present investigation, less than 5% of the data were missing, and so the EM algorithm was employed as an appropriate approach to missing data. As described in Graham (2009), this approach performs well in a range of sample sizes, with large amounts of missing data, in models with a large number of predictors, and with nonnormal data, and accounts for a wider number of variables to impute missing data (cf. the full information maximum likelihood approach). Multiple imputation was conducted based on the arts participation and outcome variables in the study.

Results

Step 1: The Role of Prior Variance

The first step includes Time 1 academic and nonacademic outcomes and their counterpart Time 2 academic and nonacademic outcomes in order to partial out prior variance. All standardized parameter estimates are presented in Tables 4 (academic outcomes) and 5 (nonacademic outcomes). As to be expected, autoregression for all factors was significant at $p < .001$ —illustrating the importance of partialing out prior variance to reveal the unique role of arts participation.

Step 2: The Role of Sociodemographics and Achievement, Controlling for Prior Variance

The next step in analyses includes all sociodemographic factors and prior achievement alongside the Time 1 prior variance factors. As Tables 4 and 5 show, there is a significant effect for gender (on academic buoyancy and life satisfaction; males score higher), non-English speaking background (on academic intentions; those from non-English-speaking backgrounds score higher), parent education (on class participation—positively), and prior achievement (on adaptive motivation, academic intentions, homework completion, self-esteem, and life satisfaction—positively; maladaptive motivation—negatively). The change in explained variance from Step 1 (prior variance) to Step 2 (inclusion of sociodemographics and prior achievement) for outcome factors ranges from 1% (academic buoyancy, school enjoyment) to 5% (maladaptive motivation, academic intentions).

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Table 4
Structural Equation Model Results for Academic Outcomes

Variable	Adaptive motivation	Maladaptive motivation	Academic buoyancy	Academic intentions	Enjoy school	Class participate	Homework complete
Step 1: Pretest (autoregression)							
Pretest	.60***	.47***	.53***	.54***	.52***	.54***	.56***
R^2	.36***	.22***	.28***	.29***	.27***	.29***	.32***
Step 2: Step 1 + covariates							
Pretest	.59***	.42***	.52***	.47***	.51***	.54***	.52***
Gender (F/M)	−.04	.02	.06*	.01	.02	.02	−.06
Age	.03	.06	−.06	.03	−.06	.07	−.07
Non-English speaking (N/Y)	.01	−.03	−.02	.11**	−.03	−.02	.01
Parent education	.06	−.07	.03	.11	.03	.09**	.03
Prior achievement	.10*	−.15***	−.02	.14**	.04	.06	.12**
R^2	.38***	.27***	.29***	.34***	.28***	.32***	.35***
ΔR^2	.02	.05	.01	.05	.01	.03	.03
Step 3: Step 2 + arts factors							
Pretest	.56***	.41***	.51***	.44***	.50***	.51***	.51***
Gender (F/M)	.01	−.01	.10**	.04	.06	.06	−.04
Age	.09*	.02	.03	.09	−.03	.14**	−.08
Non-English-speaking (N/Y)	−.01	−.01	−.05	.09*	−.04	−.04	.01
Parent education	.01	−.05	.04	.05	−.01	.05*	−.02
Prior achievement	.07*	−.13***	−.02	.10*	.03	.04	.09
Arts participation effects							
Receptive arts participation	.01	.07	.03	−.01	.02	.07*	−.08
Active arts participation	−.01	.02	−.03	.06*	−.05	−.01	.01
External arts tuition	−.13***	.05	−.06	−.14**	−.12*	−.09*	−.07*
Parent–child arts interaction	.06	−.05	−.02	.05	.08	.04	.13**
Home arts resources	.10**	−.06	−.05	.12**	.06**	.03	.09**
In-school arts tuition	.04	.01	.10**	.08	.07	.04	.01
Arts engagement	.24***	−.18**	.21***	.19*	.15**	.26***	.04
R^2	.48***	.32***	.34***	.42***	.34***	.41***	.38***
ΔR^2	.10	.05	.05	.08	.06	.09	.03

Note. $N = 643$. F/M = female/male; N/Y = no/yes.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Step 3: The Role of Arts Participation, Controlling for Sociodemographic and Achievement Factors and Prior Variance

The final step involved inclusion of arts participation, alongside sociodemographics, prior achievement, and prior variance. All standardized parameter estimates are presented in Tables 4 and 5. All significant arts participation and Time 1 prior variance parameter estimates are presented in Figure 2. Findings show that gender, age, language background, parent education, and prior achievement explain unique variance in academic and nonacademic outcomes—and thus are important to include in modeling of arts participation. Tables 4 and 5 show the beta coefficients for sociodemographic and prior achievement.

Beyond sociodemographics and prior achievement, receptive arts participation positively predicts class participation and sense of meaning and purpose. Active arts participation positively predicts academic intentions. Parent–child arts interaction positively predicts homework completion and life satisfaction. Arts-related home resources positively predict adaptive motivation, academic intentions, school enjoyment, and homework completion. In-school arts tuition positively predicts academic buoyancy, self-esteem, and sense of meaning and purpose. Arts engagement positively predicts adaptive motivation, academic buoyancy, academic intentions, school enjoyment, class participation, self-esteem, meaning and purpose, and life satisfaction. Arts engagement negatively predicts maladaptive motivation.

Also important to note is that external arts tuition negatively predicts adaptive motivation, academic intentions, school enjoyment, class participation, homework completion, self-esteem, and life satisfaction. Thus, the effects of external arts tuition were against expectations. The correlations with outcomes are in the low positives (averaging $r = .07$), however beta parameters in the SEM are negative—with a number of them statistically significant. In the online supplemental materials, we explored which arts predictors affected the swing in external arts tuition effects. Results indicated that two arts factors yielded a relatively greater swing in effects: active arts participation and arts engagement. As discussed later in the article, it may be that for external tuition to yield positive results (or not yield negative ones), active participation and positive engagement are important.

The change in explained variance from Step 2 (prior variance, sociodemographics, prior achievement) to Step 3 (inclusion of arts participation) is as follows: 10% for adaptive motivation, 5% for maladaptive motivation, 5% for academic buoyancy, 8% for academic intentions, 6% for school enjoyment, 9% for class participation, 3% for homework completion, 8% for self-esteem, 9% for life meaning, and 8% for life satisfaction. Thus, there appears to be a greater change in explained variance when arts factors are entered into the model than when sociodemographic and prior achievement factors are entered into the model.

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Table 5
Structural Equation Model Results for Nonacademic Outcomes

Variable	Self-esteem	Meaning and purpose	Life satisfaction
Step 1: Pretest (autoregression)			
Pretest	.58***	.50***	.45***
R^2	.34***	.25***	.20***
Step 2: Step 1 + covariates			
Pretest	.54***	.49***	.42***
Gender (F/M)	.01	−.01	.05*
Age	−.01	.05	−.02
Non-English-speaking (N/Y)	−.01	.05	.01
Parent education	−.02	.04	.06
Prior achievement	.19**	.03	.14***
R^2	.38***	.26***	.24***
ΔR^2	.04	.01	.04
Step 3: Step 2 + arts factors			
Pretest	.52***	.48***	.40***
Gender (F/M)	.07**	.05	.09**
Age	.08	.14**	.06
Non-English-speaking (N/Y)	−.04	.01	−.02
Parent education	−.05	−.01	.04
Prior achievement	.17**	.01	.13***
Arts participation effects			
Receptive arts participation	.02	.10*	.08
Active arts participation	−.01	−.08	−.04
External arts tuition	−.15*	−.01	−.17*
Parent–child arts interaction	.01	−.06	.07*
Home arts resources	.04	.03	−.01
In-school arts tuition	.17*	.15*	.10
Arts engagement	.23*	.26***	.25**
R^2	.46***	.35***	.32***
ΔR^2	.08	.09	.08

Note. $N = 643$. F/M = female/male; N/Y = no/yes.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Interactions

Although interactions and their interpretation are detailed in the online supplemental materials, we believe that is appropriate to briefly summarize interaction findings as they are important for contextualizing the main effects reported previously. Interactions between the seven arts predictors and the six covariate sociodemographic factors were examined. Of the 42 interaction effects examined, six were significant at $p < .001$: External Tuition × Gender For Academic Intentions; In-School Tuition × Parent Education For Enjoyment Of School; Parent–Child Arts Interaction × Language Background For Homework Completion; Parent–Child Arts Interaction × Parent Education For Homework Completion; Receptive Arts Participation × Language Background For Homework Completion; and Arts Engagement × Gender For Life Satisfaction. Hence, the fact that only six of 42 interactions were significant suggests that the arts participation main effects reported earlier and in Tables 4 and 5 are robust and generally not moderated by sociodemographic and prior achievement factors.

Summary of Major Findings

In summarizing findings, we note that arts engagement was clearly the most dominant positive arts participation factor in the study. This finding denotes arts engagement as a major inclusion, given recent suggestions of engagement as a "missing link" in organized youth activity (Bohnert et al., 2010). Also important to note is that in-school arts tuition was associated more strongly with academic outcomes than nonschool factors. Home-based arts resources and support and parent–child arts interaction significantly predicted variance in outcomes, beyond the influence of school- and community-based factors. Receptive arts participation and active arts participation were correlated with outcomes, with a relatively greater salience for active arts participation. There were also unexpected negative effects associated with external arts tuition. In terms of prioritizing predictors relative to their association with outcome measures, it seems that arts engagement, home-based factors, and external arts tuition are relatively more consistent predictors of outcomes. Taken together, findings provide empirical foundation for contentions under youth activity frameworks and positive youth development and ecological models examining the role of school-, home-, and community-based arts participation in academic (e.g., motivation, engagement) and nonacademic (e.g., self-esteem, life satisfaction) outcomes.

Discussion

The Salience of Arts Engagement

We operationalized arts engagement via cognitive, affective, and behavioral engagement items, and thus, the significant variance explained by this construct aligns with recent emphasis on the

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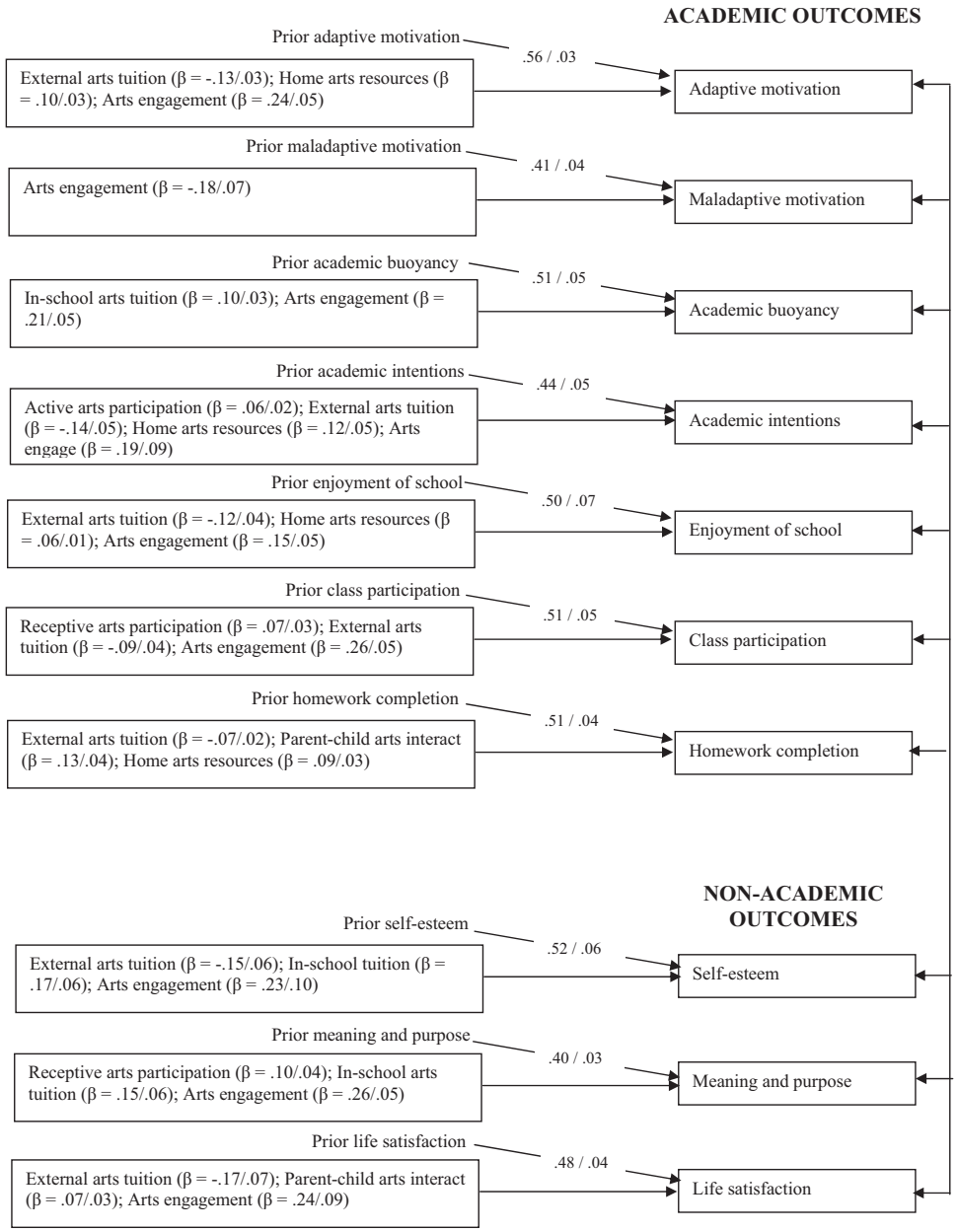

Figure 2. Betas/standard errors for significant arts factors predicting academic and nonacademic outcomes, controlling for prior variance and sociodemographic and prior achievement covariates (see Tables 4 and 5 for covariate parameters and nonsignificant arts participation parameters). $N = 643$.

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importance of engagement in educational and developmental processes (Christenson, Reschly, & Wylie, 2012; Fredricks et al., 2004). Arts engagement was also an important counterpoint to the more typical arts research inclusions such as the amount or frequency of arts participation. From this perspective, arts engagement speaks to the quality of young people's involvement, not simply its quantity. This has direct implications for pedagogy in that teachers can be a major point for fostering arts engagement. Some applied suggestions are discussed further in this section.

Arts engagement most significantly predicted adaptive motivation, academic buoyancy, and class participation (at $p < .001$). It is interesting that these three outcomes traversed cognitive (motivation), affective (buoyancy), and behavioral (participation) terrain—as did the arts engagement construct. In terms of nonacademic outcomes, arts engagement most significantly predicted sense of meaning and purpose (at $p < .001$). Perhaps it is the deeper (cognitive, affective, behavioral) immersion in the arts that has the capacity to impact deeper values and beliefs about oneself and one's place in the world. Future research might investigate these relationships and contentions more closely. What is it about arts engagement, relative to other arts participation, that connects to diverse academic and nonacademic outcomes in the ways it

does? Indeed, qualitative work might be ideal to further investigate this area.

Modeling pretest variables for each outcome measure (including the academic motivation and engagement measures) was also important for interpreting arts participation factors. Specifically, arts engagement factors were modeled alongside prior general academic motivation and engagement. In so doing, we were able to better differentiate arts engagement from general academic engagement. Moreover, the average variance shared between arts engagement and nonacademic outcomes (mean $\beta = .25$) was greater than the average variance shared between arts engagement and academic outcomes (mean $\beta = .18$), suggesting that (having controlled for prior variance in motivation and engagement outcomes) our arts engagement factor is not a general academic engagement factor (because it connects more strongly to nonacademic outcomes). Notwithstanding this finding, future research should include parallel general academic engagement measures to more conclusively demonstrate unique arts engagement effects, distinct from general academic arts effects.

Home-Based Factors

Consistent with ecological perspectives on organized youth activity (e.g., Lerner, 2005), home is a developmental context, and thus, arts-related activities and support occurring in the home have the potential to contribute to young people's developmental and educational assets. Findings supported this notion, with home-based arts resources and support and parent–child arts interaction significantly predicting variance in outcomes, beyond variance in school- and community-based factors. Furthermore, we argue these findings do not simply reflect socioeconomic status because we partialed out prior achievement, parent education, and language background, which are typical socioeconomic indicators or socioeconomic correlates. The impact of the home on adolescents' developmental and educational outcomes is well established (e.g., see Field, Diego, & Sanders, 2002; Mansour & Martin, 2009; Martin & Dowson, 2009; Martin, Marsh, McInerney, & Green, 2009). Findings from this study confirm past developmental research and also support previous arts research connecting home influences and arts participation (Barrett & Smigiel, 2003). Whereas some research has shown potentially negative effects of the family when there is pressure to be engaged in extracurricular activity (Anderson et al., 2003), our findings showed elements of home-based arts participation that connect to positive outcomes. However, when interpreting these home-based findings, one should bear in mind that our measures reflect receptive parental and home involvement and interaction (e.g., having poetry or art in the house; discussing the arts with parents). The measures do not reflect more active parental arts-involvement (e.g., active assistance with music or involvement with drama or art), and so present findings should be interpreted with this in mind. It is unclear what inclusion of more active home involvement would yield as a predictor, including its impact on the predictive role of other factors significant in our study. To the extent that it may explain variance beyond that explained by our current receptive involvement, the predictive role of other arts factors may also be affected.

The Complexity of External Arts Tuition

The negative effect of external arts tuition was unexpected. Initially, external arts tuition correlated positively with youth outcomes; yet, once included in the multivariate model controlling for shared variance, it evinced small negative (but some statistically significant) parameters. In the online supplemental materials are follow-up analyses we conducted seeking to disentangle these effects. They show that important elements for adaptive external arts tuition are engagement and active participation. Without these two elements, it may be that external tuition becomes a time-consuming activity at the opportunity cost of a student applying himself or herself to study (hence, the negative association with academic outcomes) and a relatively mundane youth pursuit that is unlikely to lead to life satisfaction (consistent with findings). That is, students are not qualitatively connected to the tuition (Bohnert et al., 2010). We argue that these results should not be interpreted as detracting from the potential value of external arts tuition—instead, they suggest the essential elements (e.g., engagement, active participation) of external arts tuition that must be present to yield a quality experience.

We also suspect that the specific nature of activities in different modes of arts participation have some bearing on findings. For example, external arts tuition is likely to be narrowly focused on domain-specific tuition (e.g., teaching the guitar or particular dance moves), whereas in-school tuition is likely to integrate with broader aspects of school activity, including social development and the curriculum. Insofar as this is the case, it is to be expected that in-school tuition in the arts is likely to relate to academic and other outcomes more closely than does external tuition. Of interest is the fact that there are different patterns of external and in-school tuition, with significantly greater time in external tuition for music, dance, and film/media ($p < .001$) and significantly greater time in in-school tuition for drama and art ($p < .001$). This leads to some interitem correlations close to zero (but not negative). In future work, researchers might more closely investigate the specific nature of activities within particular modes of arts delivery to more fully explore potentially differential impacts on young people's academic and nonacademic outcomes.

In-School Arts Tuition

Also important to note is that our study revealed in-school arts tuition to be associated more strongly with academic outcomes than nonschool factors, including external arts tuition. This result is consistent with previous research showing that in-school extracurricular activity relates more to school outcomes than does out-of-school extracurricular activity (Marsh & Kleitman, 2002). Marsh and Kleitman argued this finding supports the identification/commitment hypothesis, in which context-specific activity is associated with one's identification with and commitment to outcomes in that context. Similarly, the finding may also reflect something of a local dominance effect (Zell & Alicke, 2009), which posits that the most local or proximal is the dominant contextual frame of reference in shaping students' self-evaluations and, by extension, perhaps arts participation effects also. Our findings, therefore, provide further support for two theoretical perspectives on students' contexts and the potential place of arts participation in these theories. Notwithstanding this, relative to

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some other predictors, in-school arts tuition was not as consistent a predictor of outcomes and so must be interpreted accordingly.

Receptive and Active Arts Participation

Receptive arts participation and active arts participation were correlated with academic and nonacademic outcomes, but more so active rather than receptive arts participation—consistent with prior suggestions (Cuypers et al., 2011; O'Toole et al., 2009). However, following multivariate modeling, it seems that other aspects of arts participation explain these correlations—a finding that will perhaps lend further evidence to the debate on the relative merits of receptive and active arts participation (Seidel et al., 2009). Particularly for active arts participation, arts engagement is highly correlated with such participation and thus may be an essential element that links active arts participation to youth outcomes—that is, arts engagement is the element that qualitatively connects active arts participation to outcomes (Bohnert et al., 2010). It is also appropriate to note that active arts participation was important for understanding the unexpected negative links between external arts tuition and youth outcomes. As shown in the online supplemental material, it was one of the factors that accounted for reversal of external arts tuition beta coefficients and, thus, one of the factors important to ensure is present in external arts tuition for it to have positive connections to youth outcomes. Thus, although receptive arts participation and active arts participation were not consistently predictive of outcomes, they played an important role in helping us to disentangle other arts effects in the model.

The Covariates

The covariates were important for two reasons. First, they better enabled us to make conclusions about unique arts participation effects. Consistent with prior work, these covariates shared variance with arts participation and with the outcome variables (e.g., Catterall et al., 2012; Ewing, 2010; Hattie, 2009; Marsh & Kleitman, 2002; Martin et al., 2012; Rose-Krasnor et al., 2006), and so controlling for their presence was vital to our understanding of arts participation beyond age, gender, parent education, language background, and prior achievement. Second, the covariates are illuminating in their own right, not just as factors to partial out. Thus, after controlling for autoregression and arts participation factors, we found that gender, age, parent education, language background and prior achievement explained unique variance in academic and nonacademic outcomes.

Implications of the Present Findings

The findings hold implications for practice, policy, and theory—each discussed in the sections that follow. When considering findings in terms of their implications, we suggest some priority be given to arts predictors yielding relatively greater consistency in effects. Based on the present findings, these are arts engagement, home-based arts factors, and the complexities relevant to external arts tuition. In-school, receptive and active arts participation, and parent–child arts interactions were also important, but in relation to a narrower set of outcomes. We also remind the reader that there were some imbalances in sample representation (e.g., more girls, different arts specialization or emphasis in schools, parental education). Although we demonstrated invariance in central parameters across these groupings, we advise that the specific sample composition and representation ought to be considered when extending findings to policy, practice, and theory areas.

Implications for practice. The findings suggest that practice should not simply be focused on the quantity of arts participation; rather, there is a need to ensure quality factors such as engagement. There have been efforts to enhance engagement in the arts. For example, Scripp (2007) has identified the "five processes" framework that suggests a means of enhancing arts engagement through listening, questioning, creating, performing, and reflecting. It is also worth noting that specific dimensions of arts engagement in this study were persistence in arts subjects, happiness to continue with the arts at school, and arts self-efficacy (consistent with tripartite models of engagement comprising affective, cognitive, and behavioral engagement; Bohnert et al., 2010; Fredricks et al., 2004). There is a long line of motivation and engagement intervention research identifying ways to enhance persistence, enjoyment, and self-efficacy, and this offers direction for practice (e.g., see Martin, 2005, 2008; McInerney, Roche, McInerney, & Marsh, 1997; O'Mara, Marsh, Craven, & Debus, 2006; Schunk & Ertmer, 2000). In relation to the significant home effects, efforts might be directed to providing advice for parents on how to interact with their children about the arts (e.g., advice disseminated through newsletters, parent enrichment programs).

Although statistically significant and rather consistent across outcomes, effect sizes are not large (but see Prentice & Miller, 1992). One reason for this lies in the challenges of transfer. Transfer of motivation, engagement, skill, and knowledge from one domain to another is not necessarily easy. For arts participation to more substantially impact other curriculum domains, teachers would need to teach for transfer (Winner & Cooper, 2000). Here, teachers would explicitly show how learning in English, for example, is directly linked to learning in drama. Winner and Cooper advised that this transfer should not be based on superficial rules, but on a deep understanding for learning in the transfer domain of interest. This is important to recognize when developing practice in arts participation that will impact other curriculum areas.

Implications for policy. Given the education- and arts-based policy and funding emphasis on the arts in contexts such as the United States, the United Kingdom, and Australia, there are important implications in this area emanating from our findings. Findings suggest that arts and education policy should not simply be focused on the presence or amount of arts participation in young people's lives. Rather, findings suggest the quality of that participation is important. Clearly, school is a site of arts engagement associated with important outcomes, and this fact suggests that arts policy would do well to accommodate schools and teachers. Based on these results, it is also reasonable to conclude that arts participation has a viable place in the school curriculum. Our results indicate that arts participation is not inimical to academic outcomes. It appears there need not be an "uneasy" relationship (Bamford, 2006; Ewing, 2010) between the arts and education. Having said this, we also caution against overreliance on such findings as a sole basis for justifying the presence of arts in the curriculum. Once it relies on a significant connection to academic outcomes to justify its existence, the presence of arts is rendered

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immediately vulnerable as a means to an end and not as a defensible curriculum inclusion in its own right. As Winner and Cooper (2000) reported,

> As soon as we justify arts by their power to affect learning in an academic area, we make the arts vulnerable . . . [W]e should not require more of the arts than we do of other subjects. Were we to test whether math learning transfers to other subject areas, we would most likely find that it does not. But no one would use such a finding as a reason to cut mathematics from the curriculum. (p. 67).

Implications for theory. Our findings provide support for recent conceptual and operational frameworks for youth development. Important parts of the Benson and Saito (2000) and Bohnert et al. (2010) frameworks include the background factors relevant to youth activity. Our data contribute to these conceptual models by illustrating the role of these background factors on school-, home-, and community-based arts participation. The study also confirmed the importance of including the under-investigated role of engagement in youth activity frameworks (see Bohnert et al., 2010). In addition, results supported these conceptual frameworks by showing the significant links between youth activity (arts participation) and youth outcomes (academic and nonacademic). Taken together, the conceptual and operational frameworks proposed by Benson and Saito (2000) and Bohnert et al. (2010) were fruitful bases upon which to conduct our factor selection and factor modeling—in turn, our results provided support for the conceptual principles underpinning their frameworks.

More broadly, findings provide further support and data on positive youth development and leisure perspectives in that young people's strengths are fostered by aligning them with the developmental opportunities present in their social and physical ecologies (Benson & Saito, 2000; Caldwell & Witt, 2011; Damon, 2004; Lerner, 2005; Witt, 2002) and the self-determination, autonomy, and competence (Caldwell & Witt, 2011) derived from the various arts participation dimensions. Key school-, home-, and community-based arts participation factors with which young people aligned were important in their academic and nonacademic strengths.

Limitations and Future Directions

While shedding light on numerous aspects of arts participation, motivation, engagement, and other youth outcomes, there are some limitations to consider, and these provide direction for future work. The data were based on self-report, and so there is a need to collect data from other sources that might involve teacher and parent reports of students' arts participation, motivation, and engagement. A postsurvey achievement measure would also enhance future research. Because our achievement measure was taken before the survey period, it could only be used as a covariate. There is also a need to include other factors to provide better understanding of the relative contribution of arts participation. For example, particularly at this developmental stage, the role of peers in school engagement and in leisure and extracurricular domains is significant (e.g., Benson & Saito, 2000; Bohnert et al., 2010; Liem & Martin, 2011), and so our design might be extended in this respect. Recognizing developmental differences between elementary and high school students is also important. For example, in studies of development of talent in sports, Côté (1999) found three stages of participation, with the intensity and specialization of sports participation increasing with age over the adolescent period. The quality of one's engagement and participation in the arts may also benefit from extended involvement over time, and to the extent that this is the case, the meaning and impact of arts participation may vary across development. A data limitation to note involves the number of units at Level 2 (15 schools) that restricted analyses to preliminary variance components modeling. Although we utilized the complex command (Muthén & Muthén, 2012) to adjust for standard errors that might be affected by the hierarchical nature of the data, future researchers should seek to collect data from more schools so that multilevel SEM can be conducted to augment the student-level analyses conducted here.

Given the unexpected external arts tuition effects, researchers might look to further unpack this construct through more specific measurement (e.g., nature of tuition, quality of tuition, and so on). Additionally, our home-based arts involvement measures (to assess receptive home involvement) could not be disentangled from parental involvement more generally, and so future research might include items that assess more active parental involvement directly tied to the arts as well as general parental involvement measures. There might also be value including other extracurricular activity participation as predictors. Although we have previously found arts and sports activity explains unique variance in youth outcomes (Martin et al., 2012), this needs to be established in relation to academic motivation and engagement. Such research is also important so that researchers may better ascertain that results can be attributed to arts involvement and not simply the positive result of any activity or parent–child interactions of mutual interest that are related to the outcome measure. Further, similar such work is required in relation to specific arts forms. As explained in the introduction, we sought in the present study to investigate arts-rich youth participation, and thus data were aggregated across arts domains—there is a need for the same research design to be examined on more domain-specific bases. Also, the research design of the study was quantitative, and there are limits to what we can understand through such data. There is now a need for qualitative research to contextually illuminate why and how the various arts participation factors are associated with youth outcomes. Another approach to a future research design might involve (pseudo)experimental work to examine the effect of manipulating aspects of arts participation and to determine changes in outcomes as a result.

Conclusion

This study identified significant school-, home-, and community-based arts participation factors predicting academic (e.g., motivation and engagement) and nonacademic (e.g., self-esteem, life satisfaction) outcomes. We found these effects held after controlling for major sociodemographic and prior achievement factors and prior variance in the outcomes under focus. Findings contribute to ecological and developmental theorizing, youth activity conceptual and operational frameworks, and current perspectives on youth leisure and engagement. They are also relevant to policy makers, funding bodies, educators, and parents making decisions about the nature and extent of arts participation in students' academic and nonacademic lives.

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