

**Experiences and Emotions as Mediators in the Relationship Between  
After-School Program Participation and Developmental Outcomes**

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### Executive Summary

Middle school students' experiences in and out of after-school programs were collected throughout the 2001-2002 academic year, and analyzed in this paper in order to determine if they predicted developmental and academic outcomes. The students ( $N = 196$ ) attended eight programs in three Midwestern states. A total of 4,970 experiences were randomly sampled during weekday, after-school hours using the Experience Sampling Method (ESM) during one week in the fall and one week in the spring. A variety of measures of students' school engagement and behavior, psychosocial competence, risky behaviors, and academic performance were collected in the beginning of the academic year to construct baseline variables and at the end of the year to construct outcome variables. The difference in students' experiences in a variety of experiential and engagement variables when in versus out of programs during after-school hours predicted a number of developmental and academic outcomes after controlling for background and baseline variables. Higher importance and challenge in programs predicted higher math grades; while higher importance and lower negative affect predicted higher English grades. In addition, the differential in being unsupervised with peers predicted drug use, and the differential in apathy and boredom predicted delinquency. Both student-reported social confidence and teacher-reported psychosocial confidence were also predicted by experiential differentials, as well as teacher reports of disruptive behavior. Individually-normed z-scores of engagement and experience in specific program activities (the normalized deviation in engagement during specific activities from the subject's own weekly average) also predicted a variety of outcomes. Comparing results with the direct effect of program participation and dosage on outcomes, as illustrated in detail using a mediation model to calculate both the direct and indirect and effects of program participation on social competence, suggest that the indirect effects of experience and engagement on outcomes can be significant, even when the direct effect is negligible. Results support the suggestion that experiential factors may be critical mediators and, perhaps more potent predictors, of developmental and academic outcomes than measures of program participation or dosage.

A substantial research literature has linked after-school program and extracurricular activity participation to a variety of social, developmental, and academic outcomes. Those outcomes include improved school engagement and behavior (Darling, 2005; Fredricks & Eccles, 2006a; Pearce & Larson, 2006), the development of psychosocial competencies (Durlak & Weissberg, 2007; Dworkin, Larson, & Hansen, 2003; Fredricks & Eccles, 2006a, 2006b; Hansen, Larson, & Dworkin, 2003; Larson & Brown, 2007; Larson, Hansen, & Moneta, 2006; Posner & Vandell, 1994) protection against destructive or risky behaviors (Darling, 2005; Fauth, Roth, & Brooks-Gunn, 2007; Fredricks & Eccles, 2006a, 2006b; Mahoney & Stattin, 2000; McLaughlin, Irby, & Langman, 1994), and enhanced academic performance (Darling, 2005; Durlak & Weissberg, 2007; Fredricks & Eccles, 2006b; Mahoney, Lord, & Carryl, 2005; Posner & Vandell, 1994; see also Miller, 2003). Research has also shown that during organized structured activities (e.g., sports, clubs, drama, etc.), adolescents report more positive experiences and emotions than in any other activity types (Csikszentmihalyi & Larson, 1984; Csikszentmihalyi, Rathunde, & Whalen, 1993; Hansen et al., 2003; Larson, 2000; Larson & Brown, 2007), but no studies have examined whether those experiences and emotions directly account for positive outcomes. This link, however, is an essential one. One of the greatest problems plaguing the validity of most of the research on after-school programs is that we can not be certain that positive outcomes associated with program participation are not due to the self-selection of program participants, who might have had more positive outcomes even without participating in the programs due to background or other confounding factors (Fredricks & Eccles, 2006b; Larson, 2000). In the present study, we overcome this limitation of previous research by examining how the positive and skill-building experiences in after-school programs are directly related to the positive outcomes associated with participation. In other words, how do the positive experiences themselves mediate the relationship between program participation and outcomes? Investigating this question by combining ESM methodology with outcome measures, the present study makes new strides in overcoming selection effects, which the present research base has thus far addressed mainly by controlling for possible self-selection factors (see Darling, 2005, for an exception). More specifically, by using within-person variation in experiences and

emotions as the primary predictor of outcomes, selection effects due to differences between students who did and did not participate in programs was eliminated.

In our previous research, we contrasted students' experiences at school-based programs with their experiences in other settings during weekday, after-school hours (Vandell, Shernoff, Pierce, Bolt, Dadisman, & Brown, 2005). Adolescents reported higher intrinsic motivation, concentrated effort and positive mood states at the after-school programs than elsewhere after school. Results also showed that, when in programs, students spent a higher percentage of time supervised with peers, completing homework, in arts and academic enrichment activities, and playing sports than when not in programs. In great contrast to time spent after school when not in programs, they also spent less time watching TV and eating, and virtually no time was spent alone, when in programs. While students are clearly more engaged and motivated in programs than outside of them, and spend a greater amount of time in certain activities and in certain social arrangements, the developmental and academic benefit of that engagement and time use is still uncertain.

The present study therefore examined students' intrinsic motivation, concentrated effort, positive and negative mood states, and overall levels of engagement while in after-school programs, and whether those experiences were related to developmental outcomes in four categories defined by previous research: a) school engagement and behavior, b) psychosocial skills and competencies, c) risky behaviors, and d) academic performance. One question of theoretical interest was the extent to which an increase in conditions for flow experiences, and the resulting engagement produced by those conditions, might be linked to positive psychosocial and academic outcomes. In essence, then, we tested whether students' experiences and emotions were *mediators* in the developmental processes leading to positive outcomes among program participants.

### *Flow and Engagement*

Why should we expect students' experiences and emotions such as concentrated effort and intrinsic motivation to be mediators of positive developmental outcomes associated with after-school program

participation? As a context for positive development, the types of structured extracurricular activities offered in after-school programs may be contrasted with school and classroom activities that are characterized by high challenge and concentration (i.e., concentrated effort) but also low enjoyment and interest (i.e., intrinsic motivation), and unstructured leisure activities that tend to be experienced as high in intrinsic motivation but low in concentrated effort (Larson, 2000). Structured extracurricular activities are unique in their integration of the disciplined aspects of work with enjoyable aspects of leisure, a combination considered to be a unique benefit of voluntary, structured activities for positive youth development (Larson). When students are engaged in activities that are both play-like and work-like, conditions are ideal to encounter the psychological state of “optimal experience, or that which Csikszentmihalyi (1990) has called “flow.” Flow is a state of deep absorption in an activity that is intrinsically enjoyable, as when artists or athletes are focused on their play or performance (Csikszentmihalyi, 1990, 1997; Csikszentmihalyi & Csikszentmihalyi, 1988). The experience is all-encompassing, such that there is no psychic energy left for distractions. Individuals in this state perceive their performance to be pleasurable and successful, and the activity is perceived as worth doing for its own sake, even if no further goal is reached (Nakamura & Csikszentmihalyi, 2002).

Larson (2000) has postulated that the combined experience of intrinsic motivation in conjunction with concentrated effort inherent to flow activities occurs most frequently in the types of voluntary and structured activities offered in organized after-school programs. We therefore expected positive developmental outcomes to be associated with such activities due to the positive developmental outcomes that have been associated with flow experiences. Flow has been related to the demonstration of competencies, talent development, creative accomplishment, and school performance (Amabile, 1996; Csikszentmihalyi, 1997; Csikszentmihalyi et al., 1993; Heine, 1997; Nakamura, 1988). Highly creative artists and scholars have reported the experience of flow when engaged in their best work (Csikszentmihalyi, 1996).

Recent research has distinguished between the conditions for flow, and the psychological or phenomenological experience of flow (Schmidt, Shernoff, & Csikszentmihalyi, 2007). The primary conditions for flow experience consist of a balance between a high level of challenge presented by an activity, and a high level of skills utilized to meet that challenge. When challenges and skills are both high and in balance, it is theorized that individuals become maximally engaged, where *engagement* is conceptualized as the concurrent experience of concentration, interest and enjoyment (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). Since there are reasons to believe that structured, active leisure activities like sports and arts may produce both the conditions for flow, and the resulting experience of engagement, we specifically tested the extent to which increases in both flow or engagement during after school programs were associated with developmental and academic outcomes.

*Developmental and Academic Outcomes Associated with After School Programs*

Previous research on outcomes suggests that after-school programs can have positive effects on at least four categories of outcomes: a) school engagement and behavior, b) psychosocial skills and competencies, c) risky behaviors, and d) academic performance.

*School engagement and behavior.* During sports, arts, games, and other active leisure activities, children become engaged in learning, reporting higher levels of involvement, enjoyment, intrinsic motivation, and initiative than in any other activities (Csikszentmihalyi & Kleiber, 1991; Csikszentmihalyi & Larson, 1984; Csikszentmihalyi et al., 1993; Larson, 2000; Larson & Kleiber, 1993). It is argued that the development of specific competencies, interests, strengths, and friendships with peers sharing the same passions provides a foundation for affirming identity and continuing motivation in chosen pursuits (Barber, Eccles, & Stone, 2001; Barber, Stone, Hunt, & Eccles, 2005; Fredricks, Alfred-Liro, Hruda, Eccles, Patrick, & Ruan, 2002; Haggard & Williams, 1992; McIntosh, Metz, & Youniss, 2005; Shernoff & Hoogstra, 2001; Youniss & Yates, 1997). As participation in activities and emergent identities expand, and particularly to the extent they are school-relevant, children can become more committed and identified with school (Finn, 1989; Marsh, 1992). An increase in school engagement and motivation can include an

increase in positive feelings towards school such as belongingness and positive school attitudes, as well as a decline in disengaged behavior such as disruptiveness, absenteeism, and drop out (Darling, 2005; Finn, 1989; Fredricks & Eccles, 2006a; Mahoney & Cairns, 1997; McNeal, 1995; Pearce & Larson, 2006).

*Psychosocial skills and competencies.* Organized after-school programs help build talents and efficacy (Larson, 2000) and support social skills and relationships with peers and adults (Barber et al., 2005; Eccles & Gootman, 2002; Hansen et al., 2003; Mahoney, Schweder, & Stattin, 2002; Rhodes & Spencer, 2005; Vandell, Shumow, & Posner, 2005). Researchers have found a variety of social and emotional benefits associated with after school programs (Dworkin et al., 2003; Fredricks & Eccles, 2006a, 2006b; Hansen et al., 2003), including increased feelings of pride, self-worth, and confidence (Bergin, Hudson, Chryst, & Resetar, 1992) as well as cooperation and prosocial behavior (Pierce & Shields, 1998). Though several studies have found negative effects of programs on developmental outcomes (Mahoney, Stattin, & Magnusson, 2001; Vandell & Corasaniti, 1988), Durlak & Weissberg's (2007) meta-analysis reviewing evaluations of 73 after-school programs found that after-school programs enhance the personal and social development of youth. Specifically, according to the meta-analysis, students participating in after-school programs exhibited enhanced self-confidence, self-esteem, school bonding, and behavioral adjustment.

A primary reason for the positive psychological and social outcomes associated with after-school programs may be the types of activities that they offer. A great deal of research has found that extracurricular activities—such as sports, art, music, community projects, and special-interest academic pursuits—help children and adolescents negotiate salient developmental tasks (Mahoney, Larson, & Eccles, 2005). The specific competencies, interests, strengths, and friendships that develop during such activities appear to provide a foundation that affirms identity and encourages motivation in chosen pursuits (Barber et al., 2001; Barber et al., 2005; Fredricks et al., 2002; Haggard & Williams, 1992; McIntosh et al., 2005; Shernoff & Hoogstra, 2001; Youniss & Yates, 1997). The continuing, interactive cycle of increased motivation and skill-building appears to have cumulative effects, resulting in an upward trajectory of psychosocial confidence and competencies such as emotional self-regulation (Larson & Brown, 2007),

self-esteem (Barber et al., 2001; Holland & Andre, 1987), and positive outlook toward the future (Eccles & Barber, 1999; Jordan & Nettles, 2000).

*Risky behaviors.* In contrast to extracurricular activities, using after-school time for less structured, unsupervised, and passive activities like watching television and “hanging out” with peers is associated with delinquency, and negatively correlated with positive adjustment, school performance, and optimism for the future (Cooper, Valentine, Nye, & Lindsay, 1999; Fuligni & Stevenson, 1995; Jordan & Nettles, 2000; Mahoney & Stattin, 2000; Posner & Vandell, 1994). Extracurricular activities have been found to serve a protective function from a variety of risky behaviors and markers of maladjustment (Darling, 2005; Fauth et al., 2007; Fredricks & Eccles, 2006a, 2006b; Mahoney, Larson, Eccles, & Lord, 2005), including criminal arrest (Mahoney, 2000), alcohol consumption (Barber et al., 2001), depressed mood (Mahoney et al., 2002), and anti-social behavior with deviant peers (Mahoney & Stattin, 2000), particularly for at-risk youth (Mahoney, 2000).

*Academic performance.* Studies have also found that participation in extracurricular activities promotes educational attainment and achievement. Several studies have reported that children attending after school programs have had higher grades and achievement test scores (e.g., Darling, 2005; Fredricks & Eccles, 2006b; Mahoney, Lord et al., 2005; Posner & Vandell, 1994; see also Miller, 2003). Recently, a national evaluation of 21<sup>st</sup>-Century Community Learning Centers, a major source of after-school programs in the U.S., reported that these programs had little or no impact on academic performance and behaviors such as homework completion (James-Burdumy, Dynarski, & Deke, 2007; U.S. Department of Education, 2003). Though evidence has therefore been mixed, the evaluation of 21<sup>st</sup> Century Community Learning Centers has been sharply critiqued as methodologically flawed (Jacobson, 2003; Mahoney, Larson, Eccles et al., 2005). Moreover, the recent meta-analysis by Durlak & Weissberg (2007) concluded that students attending after-school programs achieved higher grades and test scores than those who did not.

*Research Questions*

The following research questions were investigated:

Because research has described program participation both as a dichotomous construct as well as a continuous one (i.e., “dosage”), as well as in terms of the activities they offer, we took several approaches to investigating the direct and indirect effects of program participation on outcomes:

- 1a. What was the mean group difference in outcomes between program and non-program students (direct effect)?
- 1b. What was the relationship between the percentage of time spent in programs (i.e., dosage) and outcomes (direct effect)?
- 1c. What is the relationship between outcome variables and a variety of time use, social partner, and experiential variables that were found to sharply differ by program versus non-program time (Vandell, Shernoff et al., 2005). These relationships would suggest indirect or mediating effects of programs on outcomes.
- 2a. What are the within-person differences of concentrated effort, intrinsic motivation, flow conditions, engagement, and other experiential variables when in a program compared to when not in a program during weekday after-school hours?
- 2b. What is the relationship between those within-person differences and outcomes?
- 3a. Do experiential differences in concentrated effort, intrinsic motivation, flow conditions, engagement, and other experiential variables when in programs versus elsewhere predict outcomes after controlling for the participant’s background characteristics and the baseline measure for each outcomes?
- 3b. Does each participants’ relative levels of concentrated effort, intrinsic motivation, flow conditions, engagement, and other experiential variables while participating in specific program activities predict outcomes after controlling for the participant’s background characteristics and baseline measures?

## Method

### Participants

Data were collected in two medium sized cities and one small town in three Midwestern states. A total of eight middle schools participated in the study: three schools each from two communities and two schools from the remaining community. All participating schools offered after-school programs.

Our sample consisted of middle school youth ( $N = 196$ ; sample characteristics are presented in Table 1). Fifty-three percent of the participants ( $n = 104$ ) were female. Twenty-nine percent ( $n = 57$ ) was Black; 19% ( $n = 38$ ) was Latino; 38% ( $n = 73$ ) was White; and 14% ( $n = 22$ ) was another ethnicity including Asian (1%), Native American (2%) or multiple ethnicities (11%). The sample was also economically diverse: 30% ( $n = 53$ ) had household incomes less than \$19,999; 30% ( $n = 53$ ) reported incomes between \$20,000 and \$39,999; 20% ( $n = 38$ ) reported incomes between \$40,000 and \$59,000; and 20% ( $n = 38$ ) reported household incomes over \$60,000. With respect to mother's highest level of education, 24% ( $n = 43$ ) had less than a high school degree; 22% ( $n = 42$ ) were high school graduates; 33% ( $n = 61$ ) had some college or vocational school; and 21% ( $n = 39$ ) had a four-year college degree or more. Eighty-four percent ( $n = 165$ ) were *program youth* who reported participating in an after-school program at least once during the study, and 16% ( $n = 31$ ) were *nonprogram youth* who did not participate in any organized program.

### Procedures

During one week in the fall and one week in the spring of the 2001-2002 school year, students wore digital wristwatches pre-programmed to randomly signal, or beep, five times daily during non-school hours (3:30 pm to 8:30 pm on weekdays and 10:00 a.m. to 8:30 pm on weekends). The youth responded, on average, to 33 of the 35 signals in both the fall and the spring (94% response rate), for a total of 12,433 reports. Of these experiences, 4,970 occurred after school on weekdays, between the time school was dismissed and 6 p.m. Program youth responded to a total of 4,211 signals after school, 1,079

while at a program and 3,132 while not at a program. Nonprogram youth responded to 759 signals after school, which by definition occurred when students were not at a program.

Students recorded their experiences in a daily logbook each time they were beeped. Each logbook contained 5 two-page entries. The first page of each entry asked several open-ended questions about location (“where are you?”), the primary activity (i.e., “what is the main thing you are doing?”) and secondary activity (i.e., “what else are you doing?”). Then, students were then asked about their social partners: “Who was doing this activity with you?” and “Who else was around but doing something else?” Students circled all those who were present from a menu of social partners including teacher(s), program staff, friend(s), and others. On the second page of each entry, students rated two sets of items using a 4-point scale ranging from 1 (*not at all*) to 4 (*very much*). The first set of items included: a) *Choice*: “How much choice did you have about this activity?” b) *Importance*: “How important was this activity to you?”, c) *Interest*: “Was it interesting?” d) *Challenge*: “Was it challenging?” e) *Enjoyment*: “Did you enjoy what you were doing?” f) *Concentration*: “How hard were you concentrating?” g) *Skills*: “Were you using your skills?” and h) *Wish*: “Did you wish you were doing something else?” The second set of items responded to the questions, “How were you feeling when you were signaled?” Students rated the following moods: *lonely, happy, angry, stressed, excited, bored, scared, sad, relaxed, proud, and worried*. Participants were paid \$1.00 for each logbook entry completed.

*Training.* Prior to being given the watches and logbooks, students completed a 45-minute ESM training session that was conducted by two members of the research team. Students were instructed to be as specific as possible when describing their location, activities, and companions at the moment of being beeped. Field staff met daily with participants to check logbooks for accuracy and missing data, to answer questions, and to distribute the next day’s logbooks. If participants made any errors, misunderstandings with respect to completing the ESM properly were immediately clarified. Most of the participants followed the instructions given without difficulty, demonstrating to field staff that they had been properly trained.

*Coding of activities and social partners.* Responses to open-ended items were coded by trained coders. The project managers first coded 25% of the data and then had several code-creation meetings in order to build consensus on coding categories for activities and social partners. They then prepared a codebook with detailed criteria for each coding category and coding instructions for the benefit of two coders who were thoroughly trained in the codebook prior to coding. All data were coded by the two coders with disagreements coded by consensus. Coded responses were double-entered into a database by trained data entry specialists.

*Surveys and School Records.* Student surveys, teacher surveys, and school records were collected at the beginning of the academic year for baseline purposes, and at the end of the academic year to collect outcome measures.

#### Outcome Measures

A range of constructs were created from survey items about school behavior, psychological adjustment, and risk behavior from student and teacher surveys. Some of the items were adapted from previously established scales such as Misconduct scale utilized by Brown, Clasen, & Eicher (1986) and the Loneliness and Social Dissatisfaction Questionnaire utilized by Asher, Hymel, & Renshaw (1984). In addition, school records provided information on students' grades, absenteeism, and school suspensions. Means, standard deviations, ranges, and reliabilities are presented in Table 2 (bottom; independent measures are discussed in the results section).

*Student-reported measures.* To assess school behavior, risk behavior, and social adjustment, we asked participants a series of items rated on a 4-point scale. We included two indicators of self-reported school behavior: school misconduct and school engagement. School Misconduct was assessed with a modified and greatly reduced version of Brown et al.'s (1986) Misconduct scale, a measure of inappropriate school behavior often requiring discipline. Sample items are "I cut or skip class or school" and "I am sent to the office for doing something wrong" (0 = *never*, 3 = *a lot*). School Engagement Scale included several items about learning, attitudes and social relations in school, such as "I learn interesting things at my

school” and “I like to go to my school” (1 = *not true*, 4 = *very true*). We also asked students about their involvement in risky behaviors, including smoking cigarettes and marijuana, binge drinking, and using other illegal drugs (Drug Use Scale), as well as stealing and getting arrested (Serious Delinquency Scale). We asked our participants to indicate the frequency of their involvement in each such behavior (0 = *never*, 3 = *a lot*). To assess psychosocial adjustment, items composing the Social Confidence Scale asked participants to rate themselves on a series of social skills such as “planning for the things I need to do in the future” and “working with others on a team or group project” (1 = *poor*, 4 = *excellent*).

*Teacher-reported measures.* We asked teachers to rate participants on a variety of indicators of psychosocial adjustment and school behavior. For the Psychosocial Adjustment Scale, teachers rated their students in a 5-point scale on items such as “gets along well with others” and “is happy” (1 = *strongly agree*, 5 = *strongly disagree*). On a 4-point scale, teachers also rated participants on two dimensions of school behavior: disruptiveness in class and class attendance. The first item on the Disruptiveness Scale is “How frequently is the student disruptive” (1 = *never*, 4 = *often*). Three remaining items assessed the frequency with which the teacher had disciplined the student over the last month in a variety of ways, such as giving detention or sending the child to the office (1 = *none*, 2 = *four or more times*). Two items composed the Attendance Scale: separate ratings on the frequency with which the student was absent and late (1 = *never*, 4 = *often*).

*Measures from school records.* Through school records, we obtained participants grades in mathematics and English at the end of the 2001-2002 (1 = F, 5 = A). School records also provided the number of days absent during the academic year, and whether or not the student had been suspended during it.

## Results

First, we report results of a factor analysis of our subjective experience variables, and resulting composite variable creation. Second, we present results of t-test analyses comparing group means on outcome variables between program students and non-program students. Third, we provide correlations

between outcome variables and a variety of time use, social partner, and experiential variables that were found to sharply differ by program versus non-program time. Fourth, we provide simple correlations and standardized regression coefficients predicting outcomes with the difference in experiential variables when in programs versus elsewhere, controlling for background and baseline variables. Finally, we share significant regression coefficients from models predicting outcomes with individually-normed z-score means while participating in specific program activities, again controlling for background and baseline variables.

*Subjective Experience Factor Analysis, Composite Creation, and Variable Descriptives.*

A series of factor analyses of subjective experience variables were conducted and composite variables were created. First, a factor analysis using Promax rotation was performed on the eight logbook items relating to the perception of one's activity. Two factors were associated with eigenvalues over one. The first factor, which we labeled, *Concentrated Effort*, consisted of high loadings for *challenge* ( $l_1 = .92$ ), *skills* ( $l_1 = .91$ ), and *concentration* ( $l_1 = .91$ ). The second factor, which we labeled, *Intrinsic Motivation*, included high loadings for *enjoyment* ( $l_2 = .81$ ), *wish* (reversed,  $l_2 = .78$ ), *choice* ( $l_2 = .74$ ), and *interest* ( $l_2 = .61$ ).

A second factor analysis was performed on the 11 logbook items relating to mood. Three factors were associated with eigenvalues over one. The first factor, which we labeled, *Positive Affect*, consisted of high loadings for *proud* ( $l_1 = .82$ ), *excited* ( $l_1 = .80$ ), *happy* ( $l_1 = .72$ ), and *relaxed* ( $l_1 = .68$ ). The second factor was labeled, *Negative Affect*, and included loadings for *scared* ( $l_2 = .80$ ), *worried* ( $l_2 = .79$ ), *sad* ( $l_2 = .73$ ), *angry* ( $l_2 = .59$ ), and *stressed* ( $l_2 = .50$ ). The third factor was labeled, *Apathy*, including loading for *bored* ( $l_3 = .85$ ) and *lonely* ( $l_3 = .61$ ). The top loading items were averaged to form composite variables of each factor and were utilized as dependent variables, along with one stand-alone item that did not load highly onto a factor, *importance*. For Concentrated Effort,  $\alpha = .88$ ; for Intrinsic Motivation,  $\alpha = .74$ ; for Positive Affect,  $\alpha = .75$ ; for Negative Affect,  $\alpha = .76$ , for Apathy,  $\alpha = .43$ .

In addition to the composites created from factor analysis, we also created a composite variable for *Flow Conditions* and *Engagement* adopted from previous research (Hektner, 1996; Shernoff et al., 2003; respectively). Following procedures used by Hektner (1996), we constructed a measure of the *Flow Conditions* by computing the geometric mean (the square root of the product) of the *challenge* and *skill* variables. The range of this variable was similar to the other ESM variables, and was maximized when challenge and skill are both *high* and *in balance* in accordance with the theory. Also according to flow theory, this is the primary condition expected to create a feeling of profound subjective engagement with an activity, particularly in the type of active leisure activities that structured after-school programs offer. That engagement is generally described as the *simultaneous* experience of heightened concentration, interest, and enjoyment in an activity. Following the procedure of Shernoff et al. (2003), an Engagement composite therefore combined the variables, *concentration*, *enjoyment*, and *interest*. For Flow Conditions,  $\alpha = .82$ ; For Engagement,  $\alpha = .74$ .

Descriptive statistics for all independent variables are presented in Table 2 (top). Independent variables utilized in analyses and appearing in subsequent tables include *program/non-program youth* (Table 3), percentage of time variables (Table 4), and experiential variables (Tables 4, 5, and 6). In addition to the composite variables, several ESM variables composed of individual items were included in the controlled regression analyses to obtain a more detailed understanding. This included the individual variables comprising Flow Conditions (*challenge*, *skills*), Engagement (*concentration*, *interest*, *enjoyment*), as well as *angry*, *stressed*, *bored*, *relaxed*, and *proud* (Table 7).

#### *Research Question 1: The Direct and Indirect Effects of Program Participation on Outcomes*

*1a. Mean group differences in outcomes between program and non-program students.* Table 3 presents the group means of program student and non-program students in terms of developmental and academic outcomes, with t-test results indicating statistical difference between the group means. The mean student-reported social confidence and English grades was higher among program students than non-

program students. There was also a significantly smaller percentage of suspensions among the programs students. Mean differences were not significant for the other outcome measures.

Table 4 presents the group means of outcome-baseline differences for program and non-program students, and corresponding t-test results. Means reflect the outcome mean minus the baseline mean for each group. The t-test was significant only for English grades. For English grades, the baseline measure was self-reported GPA at the beginning of the year. The negative means for both groups means that English grades at the end of the year were lower than self-reported GPA at the beginning of the year. This likely reflect exaggerated self-reported GPA compared to actual grades, or possibly the tendency for students to get lower grades than estimated based on previous years, as the level of challenge increases. However, the difference was smaller for program students, who had significantly higher English grades at the end of the year. See Figure 1 for a visual representation.

*1b. The relationship between the percentage of time spent in programs and outcomes.* The first column of Table 5 presents correlations between the percentage of signals participants spent in after school programs (i.e., dosage) and outcomes. There was a statistically significant correlation between the percentage of time spent in programs and disruptiveness in class. No other correlations were statistically significant.

*1c. The relationship between outcomes and time use, social partner, and activity variables differing by program versus non-program time.* As shown in Table 5, The percentage of time unsupervised with peers (lower in programs) was positively correlated with school misconduct, drug use, serious delinquency, being late or absent as rated by teachers, days absent according to school records, and being suspended according to school records. It was negatively correlated with English grades. Percentage of time spent alone (0% in programs) was negatively correlated with school engagement and social confidence. There was a positive correlation between the percentage of time in sports or physical activities (higher in programs) and disruptiveness in class. The percentage of time spent snacking or eating (lower in programs) was negatively correlated with being absent or late and with English grades. As shown in Table 6, intrinsic

motivation, concentrated effort, positive affect, high choice combined with high concentration, and low choice combined with high concentration (all higher in programs) were all positively correlated with social confidence. There was a negative correlation between social confidence and low choice combined with low concentration (lower in programs). Apathy (lower in programs) was positively correlated with drug use. Negative affect (no difference between programs and elsewhere) was positively correlated with drug use and serious delinquency. Disruptiveness in class was positively correlated with concentrated effort, positive affect, and high choice combined with high concentration, and negatively correlated with high choice combined with low concentration. High choice combined with low concentration (lower in programs) was positively correlated with psychosocial competence, being absent or late, and mathematics grades, and it was negatively correlated with being suspended. There were no other significant correlations.

*Post-hoc mediation model.* Because there were significant correlations between social confidence and many different experiential variables, and percentage of time in after school programs was also correlated with a variety of experiential variables (e.g., with concentrated effort,  $r = .22, p < .001$ ; with positive affect,  $r = .17, p < .05$ ; and with the combination of high choice and high concentration,  $r = .24, p < .001$ ), we tested a post-hoc mediation model to determine if there was an indirect effect of program participation on social confidence mediated by experiential variables. The mediator in the model was a latent variable measured by concentrated effort, positive affect, and the combination of high choice and high concentration. The model was performed in two steps. In the first step, background characteristics were controlled including gender, race/ethnicity, mother's education, income, and coming from a single parent family. In the second step, the baseline measure for social confidence was controlled in addition to background characteristics. Results as computed by a statistical package for structural equation modeling are presented in Table 7. In the first step, even though there was no significant direct effect of percentage of time in programs on social confidence, there was a significant effect of percentage of time in programs on the mediator, and a significant effect of the mediator on social confidence. The indirect effect in the overall model was also statistically significant. In the second step, again there was no significant direct effect, but a

significant effect of the percentage of time in programs on the mediator. Neither the effect of the mediator on social confidence nor the indirect effect in the overall model was statistically significant using the  $z$ -value cutoff of 1.96, but both were statistically significant using MacKinnon's  $z'$  distribution cutoff of .97 for a significant effect (MacKinnon et al., 2002, p. 90).

*Research Question 2: Experiential Differences When in Programs Versus Elsewhere, and Their Associations with Outcomes*

*2a. The experiential difference in programs versus elsewhere.* Table 8 presents within-person standardized differences when in programs versus when elsewhere during weekday after-school hours. The difference in concentrated effort and flow conditions, as well as their subcomponents consisting of challenge, skills, and concentration, were all higher when in programs than when not in programs. For all of these experiential variables the magnitude of the average difference was over one half of a standard deviation. The average benefit in terms of engagement was nearly one-half of a standard deviation ( $M = 0.43$ ). Intrinsic motivation, positive affect, importance, interest, and enjoyment were also higher in programs than elsewhere, while apathy and relaxation was lower. Several "negative" emotions or experiences were also slightly higher in programs, though the differences were small. This included negative affect, and feeling stressed and angry. In general, however, we may refer to these experiential differences between programs versus elsewhere as experiential "benefits" of programs.

*2b. The relationship between experiential benefits of programs and outcomes.* In Table 9, social and developmental outcomes (rows) are predicted by the experiential benefits of programs in terms of each experiential variable (columns). The first row of each cell presents the simple correlation between the experiential benefit and outcome. Misconduct was positively correlated with the experiential benefit in positive affect and feelings of being proud. There was a negative correlation between being unsupervised with peers and drug use, meaning that the tendency to be more unsupervised with peers when not in programs was positively related to greater drug use. Serious delinquency was positively correlated with apathy, feeling angry, and feeling bored. Social confidence was positively correlated with

apathy, negative affect, and feeling stressed. Disruptiveness was correlated with higher reports of feeling relaxed in programs. Being absent or late was correlated with feelings of being relaxed and proud in programs. Both math grades and English grades were positively correlated with the experiential benefit of programs in terms of concentration, negative affect, importance, flow conditions, engagement, challenge, concentration, and stress. Math grades was additionally correlated with interest; English grades was additionally correlated with skills and being unsupervised with peers, and negatively correlated with feeling relaxed in programs.

### *3. Experiential Benefits of Programs and Relative Engagement in Program Activities as Predictors of Outcomes*

*3a. Experiential benefits of programs as predictors of outcomes after controlling for background and baseline measures.* For significant correlations in Table 9, hierarchical regressions were performed with experiential benefits as predictors of outcomes in same two steps as with the post-hoc mediation model. However, the second step was omitted for teacher-reported items as well as the measure of being suspended during the school year due to lack of an appropriate baseline measure.<sup>1</sup> For both math and English grades provided at the end of the academic year, overall self-reported GPA provided early in the year was utilized as the baseline measure.

Results are presented with standardized regression coefficients in the second and third row of each cell indicating a significant correlation (first row of each cell) in Table 9. There were several significant predictors of outcomes after controlling for both baseline and outcome measures. Being more unsupervised by peers when not in programs than during programs was a significant predictor of drug use after controlling for both background and baseline measures. In addition, apathy remained a significant predictor of delinquency and social confidence. The experiential benefit in terms of challenge and

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<sup>1</sup> An indicator of being suspended “this year” taken early in the academic year was not deemed to be an appropriate baseline measure for an indicator of being suspended “this year” taken later in the same year, since students suspended early in the year would still be suspended later in the year, allowing no room for improvement. In addition, the same measure of a students’ behavior given by a teacher earlier in the same year did not appear to be an appropriate “baseline” measure for teacher reports on the same items provided later in the year due to teacher biases or opinions that would be expected to remain stable throughout the school year.

importance in programs remained significant predictors of math grades; and the experiential benefit in terms of negative affect, importance, and being unsupervised with peers remained significant predictors of English grades.

Several experiential variables for which there were no appropriate baseline measure (e.g., teacher-reported measures) remained significant predictors of outcomes after controlling for background characteristics. This included being relaxed as a significant predictor of psychosocial competence (negative association) and disruptiveness. This means that the tendency to feel less relaxed, or more tense, in programs compared to when elsewhere predicted higher psychosocial competence and lower disruptiveness after taking into account all of the control variables at our disposal. The experiential benefit of some variables remained significant predictors of outcomes after step 1, but not after step 2. This included being angry as a predictor of delinquency; flow conditions, engagement and interest as predictors of both math and English grades, and concentrated effort, challenge, interest, being relaxed (negative association), and being unsupervised by peers as predictors of English grades.

*3b. Relative levels of engagement in specific program activities as predictors of outcomes.* For determining if relative levels of engagement and other experiential variables in specific program activities predicted outcomes, ESM variables were first converted to individually-normed *z*-scores. These *z*-scores reflect a respondent's level of engagement at each signal relative to that respondent's average engagement at all other signals reported during the weeks of participation (e.g., a *z*-score of 1 means that the students' engagement when signaled was one standard deviation above his or her average engagement for all self-reports provided). *Z*-scores were then aggregated within the self-reports collected during the activity of interest while in after school programs only. The *z*-scores aggregated within activity during programs were then utilized as the predictor variables for outcomes. The after school activities considered included organized sports, socializing, homework completion, academic enrichment, arts enrichment and playing video games.

We here summarize only those results in which engagement in specific activities were significant predictors of outcomes after taking into account all control variables at our disposal, both background and baseline measures the significant results (for teacher reported measures and suspension, this includes background measures only). Results are here provided in text and there is no corresponding table.

Relative engagement during sports while in programs predicted school engagement ( $\beta = .23, p < .05$ ). Feeling relaxed during sports predicted being absent or late ( $\beta = .32, p < .01$ ); and feeling stressed and proud during sports predicted being suspended during the school year ( $\beta = -.21$  and  $-.23$ , respectively,  $p < .05$ ). Feeling proud also predicted delinquency ( $\beta = -.18, p < .05$ ). Finally, feeling stressed and relaxed during sports predicted English grades ( $\beta = -.19$  and  $-.20$ , respectively,  $p < .05$ ).

When socializing during programs, flow conditions, concentration, and skills predicted being suspended ( $\beta = .34, p < .01$ ;  $\beta = .24, p < .05$ ; and  $\beta = .27, p < .05$ ; respectively). Feeling proud predicted being absent or late ( $\beta = .30, p < .05$ ). English grades were predicted by concentrated effort ( $\beta = -.26, p < .01$ ), flow conditions ( $\beta = -.26, p < .05$ ), challenge ( $\beta = -.27, p < .01$ ), concentration ( $\beta = -.29, p < .01$ ), and skills ( $\beta = -.25, p < .05$ ).

When completing homework, negative affect was a significant predictor of misconduct ( $\beta = -.20, p < .05$ ). Feeling relaxed was a significant predictor of disruptive behavior ( $\beta = .38, p < .01$ ). Skills while completing homework was a significant predictor of social confidence ( $\beta = .23, p < .05$ ). English grades were significantly predicted by concentrated effort ( $\beta = .37, p < .01$ ), flow conditions ( $\beta = .33, p < .05$ ), challenge ( $\beta = .23, p < .05$ ), concentration ( $\beta = .36, p < .05$ ), feeling stressed ( $\beta = .23, p < .05$ ), feeling relaxed ( $\beta = -.19, p < .05$ ), and the combination of high choice with low concentration ( $\beta = -.35, p < .05$ ).

During academic enrichment activities, engagement and feeling angry predict misconduct ( $\beta = -.25$  and  $.25$  respectively,  $p < .05$ ). Feeling angry during academic enrichment activities also predicted being absent or late ( $\beta = .37, p < .05$ ). Disruptiveness was predicted by intrinsic motivation ( $\beta = -.57, p < .01$ ), apathy ( $\beta = .53, p < .01$ ), enjoyment ( $\beta = -.43, p < .05$ ), and feeling bored ( $\beta = .52, p < .01$ ). Feeling relaxed during academic enrichment predicted drug use ( $\beta = .40, p < .05$ ). Finally, serious delinquency

was predicted by intrinsic motivation ( $\beta = -.30, p < .01$ ), engagement ( $\beta = -.29, p < .01$ ), enjoyment ( $\beta = -.36, p < .05$ ), and feeling angry ( $\beta = .27, p < .01$ ) during academic enrichment activities.

During arts enrichment activities, importance is a significant predictor of misconduct ( $\beta = -.25, p < .05$ ). In addition, social confidence was predicted by apathy ( $\beta = -.25, p < .05$ ) and feeling bored ( $\beta = -.31, p < .01$ ).

Finally, while playing video games in programs, feeling angry predicted serious delinquency ( $\beta = -.80, p < .05$ ); and feeling stressed predicted school engagement ( $\beta = .58, p < .05$ )

### Discussion

In this investigation we assessed the link between after-school program participation and a variety of student outcomes, conceptualizing engagement and other experiential variables as mediators. Obtaining repeated measures of students' experiences during a year of program participation for most participants allowed us to calculate within-person differences between engagement and subjective experience when in programs versus when elsewhere. We refer to these differences as experiential "benefits" given that indicators of positive experience were considerably higher during program time. These benefits were then utilized to predict outcomes after controlling for both background and baseline measures. Because these analyses involved students attending programs only, selection effects between program and non-program students were eliminated. Indeed, this study not only measured differences in outcomes between program and non-program students, but also the direct effect of students relative *quality of experience* in programs, rather than only participation in them, on students' outcomes. There have been few studies of after-school programs that have applied a similarly stringent standard to examining associated outcomes.

#### *The Direct Effect of Participation on Outcomes*

With respect to differences in outcomes between program and non-program students, program students reported higher social confidence and English grades. The outcome-baseline difference in English grades was also higher (or less negative, likely due to exaggerated self-reported grades at

baseline) for program students. These findings support a great deal of research suggesting that after-school programs and extracurricular activities have multiple benefits for students in terms of psychosocial development (Dworkin et al., 2003; Fredricks & Eccles, 2006a, 2006b; Hansen et al., 2003) and academic achievement (Durlak & Weissberg, 2007). Program students were also absent from school fewer days, a finding consistent with studies suggesting that programs can help to protect against school disengagement including dropout and absenteeism (Darling, 2005; Finn, 1989; Fredricks & Eccles, 2006a; Mahoney & Cairns, 1997; McNeal, 1995; Pearce & Larson, 2006). Another way to measure the direct effect of program participation on outcomes is by “dosage” or percentage of time spent in programs, which we were able to estimate with the percentage of signals reported in after-school programs. However, percentage of time in programs was significantly correlated only to disruptiveness in class. Regardless of which method was utilized to measure program participation, these results are certainly vulnerable to selection effects and the multiple factors influencing not only program participation, but also the outcomes.

#### *Indirect Effects of Program Participation on Outcomes as Mediated by Experiential Variables*

Our previous research left little doubt as to the variety of experiential differences that exist when in programs versus elsewhere during the weekday, after-school hours (Vandell, Shernoff et al., 2005). Students spent significantly more time playing sports, completing homework, and in academic and arts enrichment activities, while spending significantly less time watching TV and snacking/eating, and virtually no time alone. In light of these findings results from the present study are suggestive. For example, time alone was negatively correlated with psychosocial competence. Past research has shown that adolescent-aged individuals seldom have lower levels of subjective experience than when they are alone (Csikszentmihalyi & Larson, 1984), but the negative effect of time spent alone when *not* in programs on social competencies is a seldom considered possible advantage of after-school programs. Other relationships appear to be confounded by other factors. For example, it appears likely that the positive relationship of time spent in sports with delinquency and disruptiveness could relate to variations

in energy level and aggressiveness among individuals. The negative relationship of time spent eating and snacking with disruptiveness and being absent or late may simply reveal the other side of the same coin with respect to student activity levels.

Our previous research also revealed robust and consistent differences in intrinsic motivation, concentrated effort, apathy, positive affect, and all combinations of high/low choice with high/low concentration when in programs compared to elsewhere during after-school hours. Therefore, the positive relationship of social competence to intrinsic motivation, concentrated effort, positive affect, and most combinations of high/low choice with high/low concentration was similarly suggestive. It suggested that the heightened levels of experience and emotions during after school program could be a mediator in any gains made in social competence while participating in after-school programs. Our post-hoc mediation model only confirmed this hypothesis, indicating a significant indirect effect of the percentage of in programs on social competence as mediated by experiential factors in programs after controlling for background variables (and after controlling the baseline measure of social competence, depending on what z-distribution cutoff is used).

The positive relationship between apathy and drug use is suggestive that the tendency for boredom to make drug use more likely may be mitigated by program participation. The positive relationship of negative affect with delinquency and drug use highlights the potential role of negative emotions in the risky behaviors of adolescents. Other associations appear less interpretable. It is difficult to conjecture, for example, why concentrated effort, positive affect and high choice combined with high concentration should be positively related to disruptiveness, again suggesting the possibility of confounds. In addition to suggesting several specific, beneficial effects of after school programs, such results therefore also illustrate the vulnerability of between-person associations with program outcomes where selection effects as well as other confounding variables are not controlled.

*The Experiential Benefits of Programs as Predictors of Developmental and Academic Outcomes*

Examining the difference between students' quality of experience when in programs compared to when not in programs speaks unmistakably to the actual difference that programs make in the lives of young people. We deemed it informative to first get a sense of the magnitude of those differences. The ideal conditions for flow – both high challenges and high skills – were a good deal higher in programs than elsewhere during weekdays after school. Students also experienced a good deal more concentrated effort, meaning that heightened concentration accompanied this increase in challenge and skill. These experiential “benefits” of programs were over one-half of a standard deviation, on average. According to theory (Csikszentmihalyi, 1990), individuals become more engaged when the conditions for flow are present, and indeed, students were more engaged in programs, including greater interest and enjoyment. Individuals also experienced greater intrinsic motivation, sense of importance, positive affect, and feeling of being proud, while apathy and relaxation were lower. Negative emotions were also slightly higher in programs, including feelings of anger and stress. For all of the positive emotions surveyed, however, programs indeed provided an experiential “benefit.” The relevant question with respect to our investigation was the extent to which those benefits predicted outcomes.

After controlling for both background and baseline measures, the greater amounts of time unsupervised with peers when not in programs predicted drug use, while lower feelings of apathy when in programs predicted less delinquency. This substantiates claims of after school programs as serving a protective function or providing a safe haven for risky behaviors (Darling, 2005; Fauth et al., 2007; Fredricks & Eccles, 2006a, 2006b; Mahoney, Larson, Eccles et al., 2005; McLaughlin et al., 1994). Meanwhile, the experiential benefit of programs in terms of challenge and importance predicted greater academic performance after controlling for baseline and background characteristics. This suggests that the greater educational performance and achievement associated with after school programs (Durlak & Weissberg, 2007) can indeed be directly related to the enhanced experiences encountered in after school programs, particularly due to the greater environmental challenge and perceived importance that

programs foster. Even the greater amount of negative affect that may be expected to accompany greater challenges was directly related to higher achievement in English, also after controlling for background and baseline measures.

Even though the associations did not remain after controlling for baseline measures, results also suggest that when conditions for flow are present, such that students experience a heightened interaction of challenges and skills, then these enhanced conditions as well as the higher engagement such conditions are theorized to engender are also related to stronger academic performance after controlling for background characteristics. Taken together, this suggests that the flow-engagement dynamic fostered in programs influences relative achievement among students, but not necessarily *improvement* in achievement throughout the year. Interestingly, results also suggest that feeling less relaxed or more tense in programs was related to obtaining psychosocial competencies. Overall, the greater challenges, structure, and supervision of programs carry decisive advantages in terms of a variety of developmental and academic outcomes compared to pure leisure and relaxation.

#### *Relative Engagement in Specific Program Activities As Predictors of Outcomes*

The relative level of engagement and emotions experienced in specific program activities also predicted a variety of outcomes. Many of the significant associations that remained after controlling for background and baseline measures were not readily interpretable, and yet some of the results loan themselves to interpretations that can enhance our understanding. The relative engagement experienced during sports, for example, predicted school engagement, supporting the notion that activities like sports, especially when school-based, can increase a sense of school belonging or identification (Darling, 2005; Finn, 1989; Marsh, 1992). The association between greater stress or less relaxation during programs with academic achievement may be largely due to the dominance of sports in programs as the most frequent and engaging after-school program activity (Shernoff & Vandell, 2007), where students are likely to report feeling the least relaxed because they are so physically aroused.

Results suggested that students who experience flow conditions and concentrated effort – that is, relatively high challenges, use of skills and concentration -- when socializing compared to other activities may be more likely to encounter negative outcomes like suspension or absenteeism. Nevertheless, concentration and use of skills while socializing also appeared to predict increase competencies in English.

Interesting, the students who experienced relaxation and less negative affect during homework in programs were more likely to report problematic behavior like misconduct and disruptive behavior. This provides a picture of students who do not take homework help sessions seriously as the most likely to have behavioral problems in school. Nevertheless, results do suggest academic benefits associated with increased homework completion in programs. Students who experience conditions of flow and concentrated effort during homework completion in programs report higher English grades after controlling for background and baseline measures. Better English grades were also predicted by less relaxation and greater stress – that is, by the students who probably take their academics more seriously during homework sessions. Looked at another way, however, results also support the proposition that there may be emotional costs associated with taking academics more seriously, especially in terms of increased stress levels, even as students are rewarded in terms of academic achievement (Pope, 2001).

In a previous report coming from the same study, we found that most students experience positive affect during academic enrichment activities, suggesting that such activities tend to be more involving, interactive, and therefore fun for most students (Shernoff & Vandell, 2007). In the analyses reported here, misconduct and being absent or late were predicted by feelings of anger or less engagement during enrichment activities. Drug use was predicted by those who felt the most relaxed in academic enrichment activities, and delinquency was predicted by those who had the least intrinsic motivation during academic enrichment activities. Taken together, findings from this study suggest that the students who are not reached by academic enrichment activities, such that their feelings of alienation, anger, or boredom with

school are not overcome as is the case for many students, have the worst prognoses. Such students appear more likely to have problems with drugs, delinquency, absenteeism, or tardiness.

During arts enrichment activities, the sense that activities are *unimportant* predicts misconduct. This is interesting because students in general experience the lowest sense of importance during art class relative to other subjects (Shernoff et al., 2003). Students who most strongly believe that art enrichment activities are simply not important or worthwhile appear the most likely to be disengaged and disruptive in school. Nevertheless, students who are genuinely more stimulated and less bored and apathetic during arts enrichment activities appear more likely to be psychologically and socially well-adjusted.

In a previous study, students tend to report greater flow, engagement, intrinsic motivation and concentration when playing video games, but also can report feelings of agitation, frustration, and negative affect (Coller & Shernoff, 2007). Though there are few significant findings related to playing video games during program time in the present study, partially due to the small number of students who contributed self-reports while doing so, feeling angry while playing video games predicted lower delinquency, and feeling stressed playing video games predicted higher school engagement. These results are potentially thought-provoking, because they suggest that playing video games can serve a protective function as an outlet for negative emotions and alternative to more aggressive or dangerous acts. In addition to only warding off destructive behavior, playing video games while on site in after-school programs might also be associated with positive attitudes and beliefs about school.

#### *Recommendations and Implications for Future Research*

In sum, a good deal of research using the Experience Sampling Method has shown that students experience disengagement, boredom and lack of intrinsic motivation in school, but experience peak engagement, intrinsic motivation, and concentrated effort during structured, active leisure activities like clubs, hobbies, and sports (Csikszentmihalyi & Larson, 1984; Csikszentmihalyi et al., 1993; Hansen et al., 2003; Larson, 2000; Larson & Brown, 2007; Larson & Kleiber, 1993) and in after-school programs specifically (Vandell, Shernoff et al., 2005). Unfortunately, funding for sports, clubs and after-school

programs is vulnerable in times of fiscal constraint, especially when studies suggest a lack of relationship to academic outcomes (James-Burdumy et al., 2007). By identifying the the experiential benefits that students receive when in programs, and their effect on both developmental and academic outcomes, the present study adds to mounting research drawing clear connections between structured extracurricular and after-school activities and positive outcomes using stringent methodological standards (Darling, 2005; Durlak & Weissberg, 2007; Fredricks & Eccles, 2006a, 2006b). Therefore, this report supports recommendations for increasing the opportunities of youth to participate in the types of activities provided by structured after-school programs with peers and adult supervision (Eccles & Gootman, 2002). Such programs appear to provide challenging and meaningful opportunities for skill building in a variety of psychosocial and academic domains as an alternative to risky and dangerous behavior.

It has been suggested that the effects of extracurricular activities on outcomes may be exaggerated in research due to selection effects (Fredricks & Eccles, 2006b). While not disputing this point, this study also suggests that research may also *underestimate* the effects of programs on some outcomes by failing to measure the direct effect of the experiences and competencies that students acquire in a variety of domains as program participation unfolds. Several observations from the analyses in the present study support this view. First, both measures of program participation – the dichotomous measure as well as percentage of time, or dosage – were associated with only a few psychosocial outcomes. There was a significant outcome-baseline difference between program and non-program students only for English grades. However, the difference in student’s quality of experience while at programs compared to when not in programs, as well as relative engagement in specific activities, predicted a broader range of outcomes, especially academic performance. Secondly, our mediation model provides direct, concrete evidence of this claim, even if it is only one example. In this analysis we see precisely that participants’ quality of experience in programs can mediate a relatively robust indirect effect of program participation on a psychosocial outcome, even in complete absence of a direct effect. Of course, we here presented the

results of only one study with its share of limitations, but perhaps that makes such a proposition all the more worth investigating further.

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Table 1  
Sample Characteristics of Children and Their Families

Characteristic	<i>n</i>	%
Child gender		
Girls	104	53
Boys	92	47
Child ethnicity		
White	73	38
Black	57	29
Latino	38	19
Other	28	14
Family structure		
Single-parent	76	41
Two-parent	107	59
Maternal education <sup>a</sup>		
1=8th grade or less	16	9
2=Some high school (did not graduate)	18	10
3=high school equivalency (GED)	9	5
4=High school graduate	42	22
5=Vocational, trade, or business school after high school	16	9
6=Some college (did not graduate)	32	17
7=Graduated from a 2-year college	13	7
8=4-year college degree or advanced degree	39	21
Family income <sup>b</sup>		
1=\$0	5	3
2=\$1-4999	12	6
3=\$5000-7999	7	4
4=\$8000-10999	5	3
5=\$11000-14999	10	6
6=\$15000-19999	14	8
7=\$20000-24999	16	9
8=\$25000-29999	19	11
9=\$30000-39999	18	10
10=\$40000-49999	19	10
11=\$50000-59000	19	10
12=\$60000 or more	38	20
Program Status <sup>c</sup>		
Program Student	31	16
Non-program student	165	84

*Note.* *N* = 196. The sum of *n* does not equal 196 in each category due to missing data; Percentages total to 100%, reflecting percentages of participants contributing data.

Average children's age = 13.41 (SD = 0.59, Range = 12 - 15).<sup>65</sup>

<sup>a</sup> Average maternal education = 4.98 (SD = 2.25, Range = 1 - 8).

<sup>b</sup> Average family income = 8.20 (SD = 3.27, Range = 1 - 12).

<sup>c</sup> Based on at least one report in an after-school program during the study.

Table 2  
Descriptive Statistics of Predictors and Outcomes Variables

<u>Predictor Variables:</u>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>Reliability</i>
Program/Non-Program Student (0/1)	196	0.84	0.37	0 - 1	
<u>ESM predictors: % of Time</u>					
% signals at any after-school programs	196	22.52	20.27	0 - 74.68	
% signals with peers unsupervised	196	17.39	14.61	0 - 67.92	
% signals alone	196	9.17	11.17	0 - 66.76	
% signals completing homework	196	7.40	9.29	0 - 60.27	
% signals in arts/academic enrichment	196	9.61	9.28	0 - 46.67	
% signals in sports/physical activities	196	10.71	12.83	0 - 55.00	
% signals TV/movie watching	196	15.14	11.04	0 - 74.40	
% signals snacking/eating	196	6.66	6.70	0 - 33.57	
<u>ESM predictors: Experiential Ratings</u>					
Intrinsic motivation	196	2.86	0.40	1.88 - 3.93	0.74
Concentrated effort	196	2.02	0.57	1 - 3.91	0.88
Apathy	196	1.44	0.34	1 - 2.66	0.43
Positive affect	196	2.32	0.58	1.21 - 3.94	0.75
Negative affect	196	1.25	0.28	1 - 2.93	0.76
Importance	196	2.59	0.57	1.04 - 3.95	
% signals high choice and high concentration <sup>1</sup>	196	18.07	20.24	0 - 100	
% signals high choice and low concentration <sup>1</sup>	196	27.28	17.37	0 - 81.25	
% signals low choice and high concentration <sup>1</sup>	196	2.60	5.43	0 - 31.67	
% signals low choice and low concentration <sup>1</sup>	196	15.89	13.48	0 - 72.92	
Flow Conditions	196	2.86	0.57	1 - 3.86	0.82
Challenge	196	1.90	0.60	1 - 3.95	
Skills	196	2.09	0.62	1 - 3.84	
Engagement	196	2.43	0.51	1.36 - 3.95	0.74
Concentration	196	2.04	0.61	1 - 3.95	
Interest	196	2.50	0.57	1.13 - 3.95	
Enjoyment	196	2.79	0.51	1.40 - 4.00	
Angry	196	1.24	0.31	1 - 2.61	
Stressed	196	1.47	0.50	1 - 3.82	
Bored	196	1.64	0.50	1 - 3.11	
Relaxed	196	2.52	0.69	1.06 - 3.96	
Proud	196	1.84	0.77	1 - 3.90	
<u>Outcome Variables:</u>					
<u>Child reported outcomes</u>					
School misconduct	182	0.42	0.56	0 - 3	0.76
School engagement	182	2.95	0.63	1 - 4	0.80
Drug use	178	0.18	0.35	0 - 2	0.75
Serious delinquency	182	0.18	0.43	0 - 2.50	0.54
Social confidence	182	2.92	0.60	1 - 4	0.79
<u>Teacher reported outcomes</u>					
Psychosocial competence	137	3.57	0.92	1 - 5	0.93
Disruptive in class (standardized)	138	0.01	0.84	-0.67 - 3.69	
Class attendance: late or absent	138	2.09	0.80	1 - 4	0.66
<u>School student record</u>					
Academic achievement: English	182	3.67	1.15	1 - 5	
Academic achievement: Mathematics	181	3.59	1.24	1 - 5	
School attendance: Days absent	181	10.83	10.60	0 - 53	
School attendance: Suspended yes/no	161	0.30	0.46	0 - 1	

Note 1. Based on signals prior to 6 pm in weekdays:

Note 2. Total # of signals *N* = 12433 (Wave I=6493, Wave II=5940).

<sup>1</sup>Combination of intrinsic motivation and concentrated effort:  $\geq 3.00$  = high,  $\leq 2.00$  = low.

Table 3  
Group Differences for Social and Academic Outcomes Between Program and Non-Program Youth.

<u>Outcome Measure</u>	<u>Program Students</u>		<u>Non-Program Students</u>		<u>t</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
(S) School Misconduct	0.45	0.57	0.29	0.47	1.33
(S) School Engagement	2.95	0.60	2.5	0.79	0.01
(S) Drug Use	0.16	0.33	0.26	0.32	-1.36
(S) Serious Delinquency	0.18	0.45	0.15	0.29	0.30
(S) Social Confidence	2.98	0.58	2.60	0.62	3.05**
(T) Psychosocial Competence	3.61	0.92	3.34	0.85	1.47
(T) Disruptive in Class	0.02	0.86	-0.14	0.70	0.71
(T) Absent or Late	2.11	0.80	1.93	0.84	0.82
(SR) English Grades	3.77	1.12	3.17	1.18	2.67**
(SR) Math Grades	3.61	1.27	3.48	1.12	0.51
(SR) Days Absent	9.95	9.57	15.41	14.22	-2.58*
(SR) Suspended	0.27	0.45	0.40	0.50	-1.35

Note. S = Student-reported measure, T = Teacher-reported measure, SR = obtained from school records  
\*  $p < .05$ . \*\*  $p < .01$ .

Table 4  
Group Differences in Outcome-Baseline Differences Between Program and Non-Program Youth

<u>Outcome Measure</u>	<u>Program Students</u>		<u>Non-Program Students</u>		<u>t</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
(S) School Misconduct	0.01	0.59	-0.21	0.64	1.74
(S) School Engagement	-0.21	0.67	-0.18	0.81	-0.17
(S) Drug Use	0.05	0.35	0.16	0.39	-1.54
(S) Serious Delinquency	0.00	0.40	-0.03	0.21	0.32
(S) Social Confidence	-0.13	0.57	-0.09	0.82	-0.35
(SR) English Grades	-0.37	0.99	-0.93	1.41	2.59**
(SR) Math Grades	-0.50	10.11	-0.53	1.07	-0.14
(SR) Days Absent	-0.22	7.52	0.91	8.02	-0.64
(SR) Suspended	0.08	0.49	0.15	0.54	-0.63

*Note.* S = Student-reported measure, SR = obtained from school records. Teacher-reported outcomes were omitted due to no baseline measure. The baseline measure for both English and math grades was students' self-reported overall GPA at the beginning of the academic year

\*\*  $p = .01$ .

Table 5  
Correlations Between Outcome Variables, Percentage of Signals in Programs, and Percentage of Signals in Activities and Social Arrangements Having Significant Program Differences

	% time in after-school program	% time unsupervised w/peers	% time alone	% time completing homework	% time in arts / academic enrichment	% time in sports or physical activities	% time TV/movie watching	% time snacking or eating
(S) School misconduct	0.02	0.21**	0.04	-0.02	-0.05	0.05	-0.01	-0.04
(S) School engagement	0.00	-0.10	-0.17*	0.05	-0.03	0.02	-0.04	0.07
(S) Drug use	-0.05	0.20**	-0.09	-0.00	-0.11	0.16*	-0.09	0.09
(S) Serious delinquency	0.05	0.33***	0.02	-0.08	-0.01	0.11	-0.06	-0.06
(S) Social confidence	0.08	-0.02	-0.17*	0.13	0.06	0.02	-0.06	-0.05
(T) P-S competence	-0.02	-0.14	-0.02	-0.02	0.07	-0.14	-0.12	0.12
(T) Disruptive in class	0.20*	0.13	0.09	-0.09	0.02	0.20*	0.02	-0.18*
(T) Absent or late	0.05	0.25**	-0.06	0.00	0.13	0.03	0.02	-0.22**
(SR) English	-0.10	-0.18*	-0.02	-0.01	-0.02	-0.05	0.11	0.02
(SR) Mathematics	-0.12	-0.09	-0.00	-0.08	0.03	-0.01	0.07	0.02
(SR) Days absent	-0.09	0.17*	0.06	-0.02	0.00	-0.03	-0.02	-0.11
(SR) Suspended	0.14	0.28***	0.00	-0.02	0.08	0.03	-0.08	0.00

*Note.* Based on signals prior to 6 p.m. on weekdays. S = Student-reported measure, T = Teacher-reported measure, SR = obtained from school records. P-S = Psychosocial. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 6  
Correlations Between Outcomes Variables and Experiential Variables Having Significant Program Differences

	Intrinsic motivation	Concentrated effort	Apathy	Positive affect	Negative affect	High choice and high concentration	High choice and low concentration	Low choice and high concentration	Low choice and low concentration
(S) School misconduct	0.03	0.06	-0.02	0.03	0.03	0.08	-0.08	0.00	-0.02
(S) School engagement	0.08	0.07	-0.03	0.08	0.01	0.08	0.03	-0.05	-0.03
(S) Drug use	-0.12	-0.04	0.16*	-0.07	0.20**	-0.12	-0.04	-0.02	0.02
(S) Serious delinquency	-0.03	0.11	0.11	0.01	0.20**	0.02	-0.11	0.08	-0.09
(S) Social confidence	0.29***	0.28***	-0.02	0.31***	0.04	0.23**	0.07	0.20**	-0.32***
(T) P-S competence	0.06	-0.129	0.12	-0.16	0.053	-0.11	0.25**	-0.01	-0.03
(T) Disruptive in class	0.04	0.217*	-0.02	0.19*	0.09	0.26**	-0.21*	-0.00	-0.05
(T) Absent or late	-0.01	0.11	-0.03	0.15	0.08	0.04	-0.10	-0.01	-0.05
(SR) English	0.11	-0.00	0.12	-0.08	0.03	0.01	0.23**	0.03	-0.07
(SR) Mathematics	0.00	-0.05	0.05	-0.03	0.00	-0.06	0.16*	-0.00	0.03
(SR) Days absent	-0.05	-0.07	-0.05	0.01	-0.01	-0.08	-0.07	-0.09	0.03
(SR) Days absent	-0.14	0.02	0.03	0.03	0.07	0.00	-0.19*	0.01	0.10
(SR) Suspended									

Note. Based on signals prior to 6 p.m. on weekdays. S = Student-reported measure, T = Teacher-reported measure, SR = obtained from school records. P-S = Psychosocial. \*  $p < .05$ . \*\*  $p < .01$  \*\*\*  $p < .001$ .

Table 7

Path Coefficients in a Model with a Latent Experiential Variable as Mediator in the Effect of Percentage of Time in Programs on Social Confidence, Estimate (Estimate/SE)

Step	Direct effect	% Time in programs on mediator	Mediator on social confidence	Indirect Effect
Step 1	0.00 (-0.14)	0.01 (3.06)**	0.34 (3.73)***	0.00 (2.37)**
Step 2	.00 (-.50)	0.01 (3.07)**	0.14 (1.65) <sup>a</sup>	0.00 (1.45) <sup>a</sup>

*Note.* Step 1 = Coefficients with background variables controlled. Step 2 = Coefficients with background variables + baseline measure of social confidence controlled. \*\*  $p < .01$  using  $z$ -value cutoff of 2.58, \*\*\*  $p < .001$ . using  $z$ -value cutoff of 3.50.

<sup>a</sup> Statistically significant using MacKinnon's  $z'$  distribution cutoff of .97 for a significant indirect effect (MacKinnon et al., 2002, p. 90).

Table 8  
Standardized Differences in Experiential Variables When In vs. Out of Programs

Variable	Standardized Mean Difference <sup>a</sup>
Intrinsic Motivation	0.15
Concentrated Effort	0.68
Apathy	-0.17
Positive Affect	0.12
Negative Affect	0.05
Importance	0.35
Flow Conditions	0.68
Engagement	0.43
Challenge	0.64
Skills	0.80
Concentration	0.54
Interest	0.30
Enjoyment	0.17
Angry	0.07
Stressed	0.11
Bored	0.11
Relaxed	-0.21
Proud	0.16

*Note.* Based signals prior to 6 p.m. on weekdays.

<sup>a</sup>Standardized Mean Difference = (In Program Mean – Program Mean) / SD.

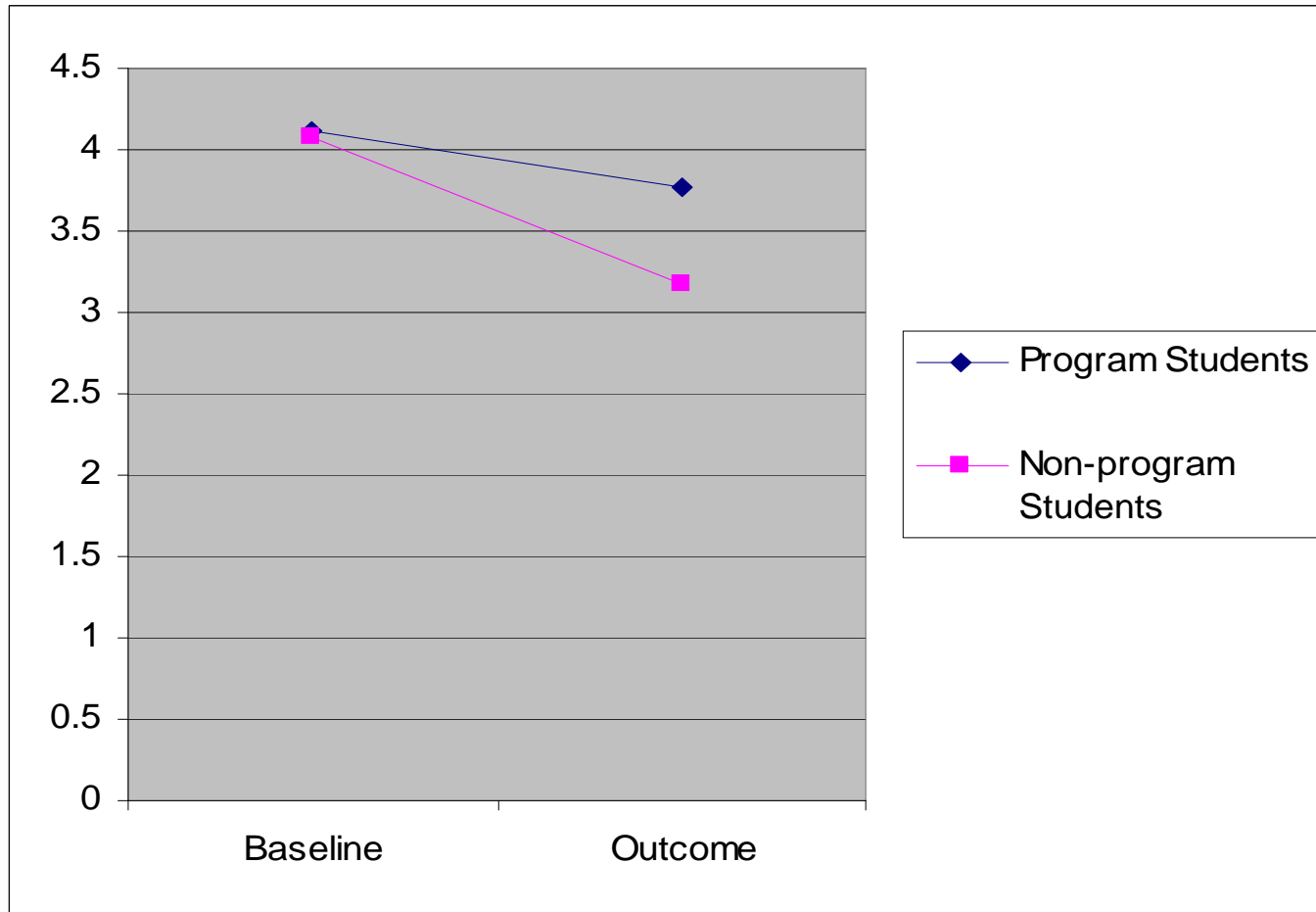
Table 9. Social and Academic Outcomes Predicted by the Difference in Experiential Variables When In vs. Out of Programs

<u>Outcome</u>	<u>Intrinsic Motivation</u>	<u>Conc. Effort</u>	<u>Apathy</u>	<u>Positive Affect</u>	<u>Negative Affect</u>	<u>Importance</u>	<u>Flow Conditions</u>	<u>Engagement</u>
(S) Misconduct (r)	0.05	0.05	-0.05	0.17*	-0.01	-0.10	0.04	0.08
Step 1				0.11				
Step 2				0.12				
(S) Sch. Engage (r)	0.02	-0.04	0.08	-0.03	-0.02	0.01	-0.05	-0.04
Step 1								
Step 2								
(S) Drug Use (r)	-0.01	0.00	0.01	0.07	0.08	0.01	0.00	0.01
Step 1								
Step 2								
(S) Delinquency (r)	-0.10	-0.02	0.17*	0.00	0.00	-0.13	-0.08	-0.01
Step 1			0.18*					
Step 2			0.14*					
(S) Soc. Conf. (r)	0.01	-0.07	0.19*	-0.56	0.21*	0.05	-0.07	-0.03
Step 1			0.10		0.12			
Step 2			0.17*		0.11			
(T) P-S. Comp. (r)	0.01	0.10	-0.05	-0.09	0.05	0.11	0.13	0.-05
Step 1								
Step 2								
(T) Disruptive (r)	0.03	-0.01	-0.05	0.17	-0.01	-0.09	-0.01	-0.08
Step 1								
Step 2								
(T)Absent / late (r)	-0.08	-0.09	0.02	0.04	-0.07	-0.13	-0.09	-0.09
Step 1								
Step 2								
(SR) Math Grade (r)	0.13	0.26**	-0.05	-0.07	0.17*	0.24**	0.21*	0.28**
Step 1		0.16 +			0.10	0.26***	0.18*	0.19*
Step 2		0.09			0.09	0.21**	0.10	0.12
(SR) Eng. Grade (r)	0.11	0.25**	0.04	-0.05	0.24**	0.18*	0.24**	0.19*
Step 1		0.16*			0.17*	0.22**	0.15*	0.22*
Step 2		0.09			0.17*	0.17*	0.08	0.14+

<u>Outcome</u>	<u>Challenge</u>	<u>Skills</u>	<u>Concentrate</u>	<u>Interest</u>	<u>Angry</u>	<u>Stressed</u>	<u>Bored</u>	<u>Relaxed</u>	<u>Proud</u>	<u>Unsup. w. Peer</u>
(S) Misconduct (r)	0.02	0.07	0.04	0.09	0.08	-0.06	-0.03	0.06	0.18*	-0.08
Step 1									0.14+	
Step 2									0.13+	
(S) Sch. Engage (r)	-0.09	0.01	-0.02	-0.01	-0.05	0.03	0.06	0.03	-0.09	0.15
Step 1										
Step 2										
(S) Drug Use (r)	-0.07	0.07	-0.01	0.06	0.12	-0.06	0.02	0.02	0.13	-0.23*
Step 1										-0.24*
Step 2										-0.22*
(S) Delinquency (r)	-0.07	0.09	-0.06	-0.06	0.17*	-0.13	0.20*	0.02	0.05	-0.13
Step 1					0.19*		0.21*			
Step 2					0.08		0.15*			
(S) Soc. Conf. (r)	-0.04	-0.09	-0.05	0.01	0.03	0.17*	0.10	0.06	-0.01	0.08
Step 1						0.12				
Step 2						0.13				
(T) P-S Comp. (r)	0.19*	0.03	0.05	0.09	-0.08	0.20*	-0.05	-0.23*	0.10	0.05
Step 1	0.14					0.09		-0.20*		
Step 2										
(T) Disruptive (r)	-0.08	-0.05	0.10	-0.01	0.13	-0.06	-0.11	0.25**	0.04	0.02
Step 1								0.22*		
Step 2										
(T) Absent / late (r)	-0.16	0.00	-0.06	-0.11	-0.02	-0.01	0.06	0.22*	-0.20**	-0.13
Step 1								0.15	-0.15	
Step 2										
(SR) Math Grade (r)	0.33**	0.15	0.21*	0.20*	0.08	0.21*	-0.07	-0.16	0.09	0.11
Step 1	0.23**		0.12	0.20*		0.08				
Step 2	0.16*		0.07	0.12		0.02				
(SR) Eng. Grade (r)	0.27**	0.17*	0.23**	0.16	0.14	0.23**	0.04	-0.21*	0.09	0.18**
Step 1	0.18*	0.10	0.15+	0.22**		0.10		-0.16*		0.16*
Step 2	0.12	0.03	0.08	0.14+		0.06		-0.14 +		0.15*

*Note.* Step 1 = Standardized regression coefficients with background variables controlled. Step 2 = Standardized regression coefficients with background variables + baseline measure of outcome controlled. Step 2 was omitted for teacher-reported outcomes due to no baseline measure. The baseline measure for both English and math grades was students' self-reported overall GPA at the beginning of the academic year. S = Student-reported measure, T = Teacher-reported measure, SR = obtained from school records Sch. Engage. = School Engagement, Soc. Conf. = Social Confidence, P-S Comp. = Psychosocial competencies, Eng. = English. The outcome variables for days absent and suspended, and predictor variable for interest, were omitted from the table due to lack of significant associations. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$  \*\*\*  $p < .001$ .

Figure 1  
 English Grades: Baseline to Outcome by Program vs. Non-program Student



*Note.* The baseline measure for English grades was students' self-reported overall GPA at the beginning of the academic year. Both the difference in English grades at outcome, and the outcome-baseline difference, was statistically significant at  $\alpha = .05$ .



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