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

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# Positive Outcomes Linked to After School Programs

- Improved school engagement and behavior (Pearce and Larson, 2006; Fredricks & Eccles, 2006a)
- Psychosocial competencies (Durlak & Weissberg, 2007; Hansen, Larson, & Dworkin, 2003)
- Protection against destructive or risky behaviors (Darling, 2005; Fauth, Roth, & Brooks-Gunn, 2007)
- Enhanced academic performance (Durlak & Weissberg; Fredricks & Eccles, 2006b)

# Quality of Experience as a Mediator of Outcomes

- Organized structured activities (e.g., sports, clubs, drama) lead to positive emotions and experiences (Csikszentmihalyi & Larson, 1984; Larson, 2000; Larson & Brown, 2007)
- Few studies have examined the link between experiences and outcomes.
- An essential link
- The challenge of controlling for self-selection factors (Fredricks & Eccles, 2006b; Larson, 2000).

# Heightened Quality of Experience in After-School Programs*

- **Higher percentage of time:**
  - supervised with peers
  - completing homework
  - arts and academic enrichment activities
  - playing sports
- **Lower percentage of time:**
  - watching TV
  - eating and snacking
  - alone
- **Higher Quality of Experience in terms of:**
  - conentrated effort
  - intrinsic motivation
  - postive mood states

*from Vandell et al, 2005

# Flow and Engagement

- **The Unique Experiental Profile of Extracurrricular Activities (Larson, 2000)**
- **The Experience of Flow**
- **Positive outcomes related to flow:**
  - talent development (Csikszentmihalyi, Rathunde & Whalen, 1993)
  - school performance (Heine, 1997; Nakamura, 1988)
  - discovery and creative accomplishment (Csikszentmihalyi, 1996)
- **Flow Conditions**
  - Primarily, the balance of challenge and skills
- **The Resulting Experience of Engagement (Shernoff et al., 2003)**
  - concentration
  - interest
  - enjoyment

# Research Questions

1. What are the direct and indirect effects of program participation on developmental and academic outcomes?
2. Do within-person difference in experience when in programs compared to when not in programs predict developmental and academic outcomes?
3. Does relative quality of experience in specific program activities predict developmental and academic outcomes?

# Method

- *Participants*
- N = 196 mostly 8th grade student, with both *program* and *non-program* students (*n* = 165 & 31, respectively) 8 middle schools in three different states in the Midwest
- Participants were evenly distributed across schools and sites
- Higher percentage of Black and lower percentage of White students than national demographics
- High percentage of low income groups

## *Procedures:* Measuring subjective experience and engagement

- **Instrument: The Experience Sampling Method (ESM)**
  - Digital wristwatches (signaled to beep randomly 5 times daily at non-school hours)
  - Logbook (5 two-page entries with 23 items)

# *Procedures*

- Training
  - 45-minute training session with two field staff
  - In data collection week, field staff met with participants daily to check logbooks for accuracy and missing data, answer questions, and provide new logbooks.
  - Most of the participants followed the instructions given without difficulty
- Coding of activities and social partners
  - Responses related to activities and social partners were coded by two trained coders
  - Inter-coder reliability ranged from **.89** to **.95** depending on coding category

# *Procedures*

- *Implementation*
- Wave 1: 1 week - Fall semester (2001-2002)
- Wave 2: 1 week - Spring semester
- Signals:
  - 3:30pm - 8:30pm (weekdays)
  - 10:00am - 8:30pm (weekends)
- Stipend: $1.00 for each logbook entry completed
- Response: 33/35 signals (94%)

# *Outcome Measures*

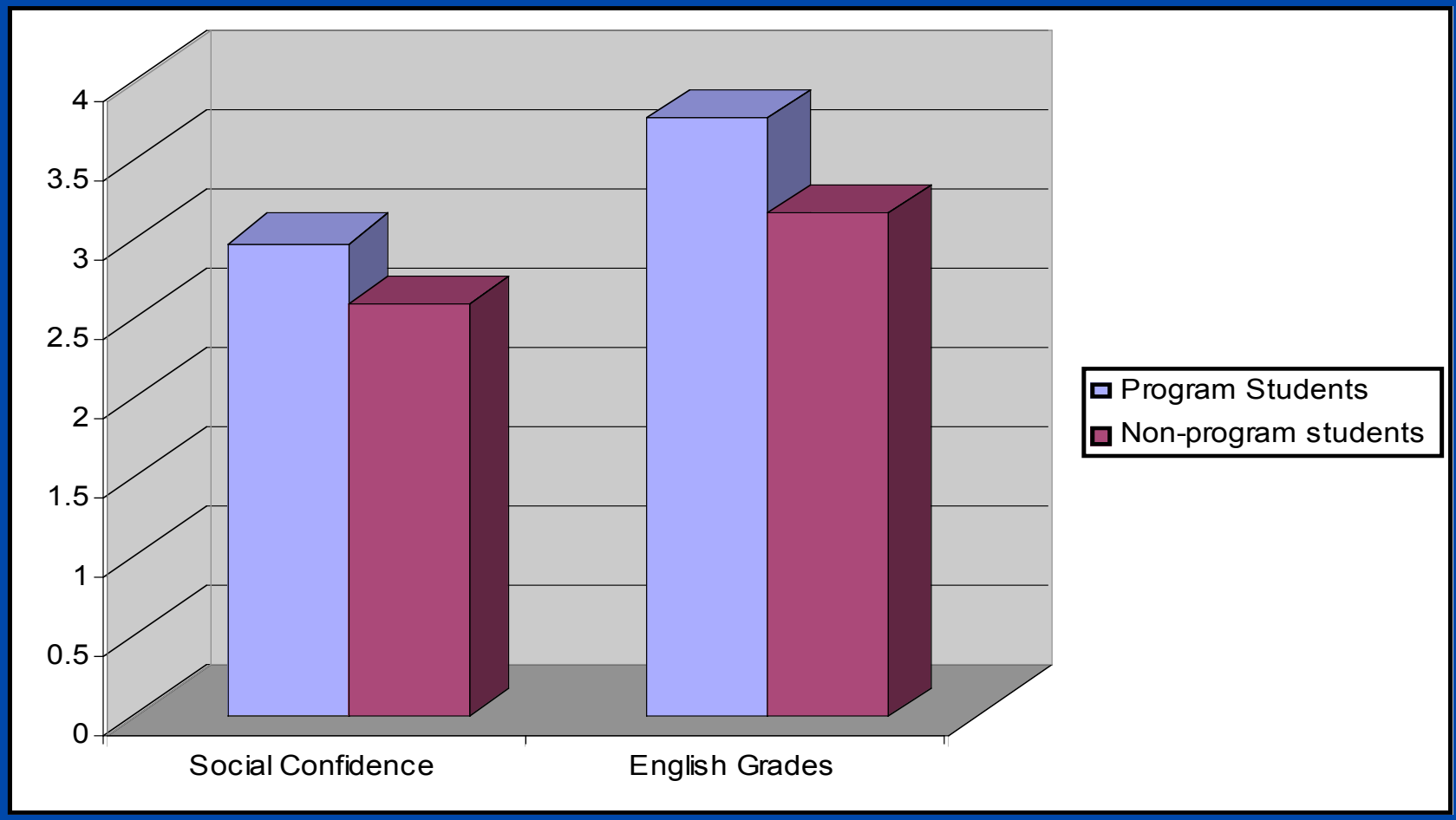
- Child reported outcomes
- School misconduct, $\alpha = .76$.
- School engagement, $\alpha = .80$.
- Drug use, $\alpha = .75$.
- Serious delinquency, $\alpha = .54$.
- Social confidence, $\alpha = .79$.
- Teacher reported outcomes
- Psychosocial competence, $\alpha = .93$.
- Disruptive in class (standardized)
- Class attendance: late or absent, $\alpha = .66$.
- School student record
- Academic achievement: English
- Academic achievement: Mathematics
- School attendance: Days absent
- School attendance: Suspended yes/no

## *Table 1*: Factor Analysis and Composite Creation

*Factors with eigenvalues over one:*

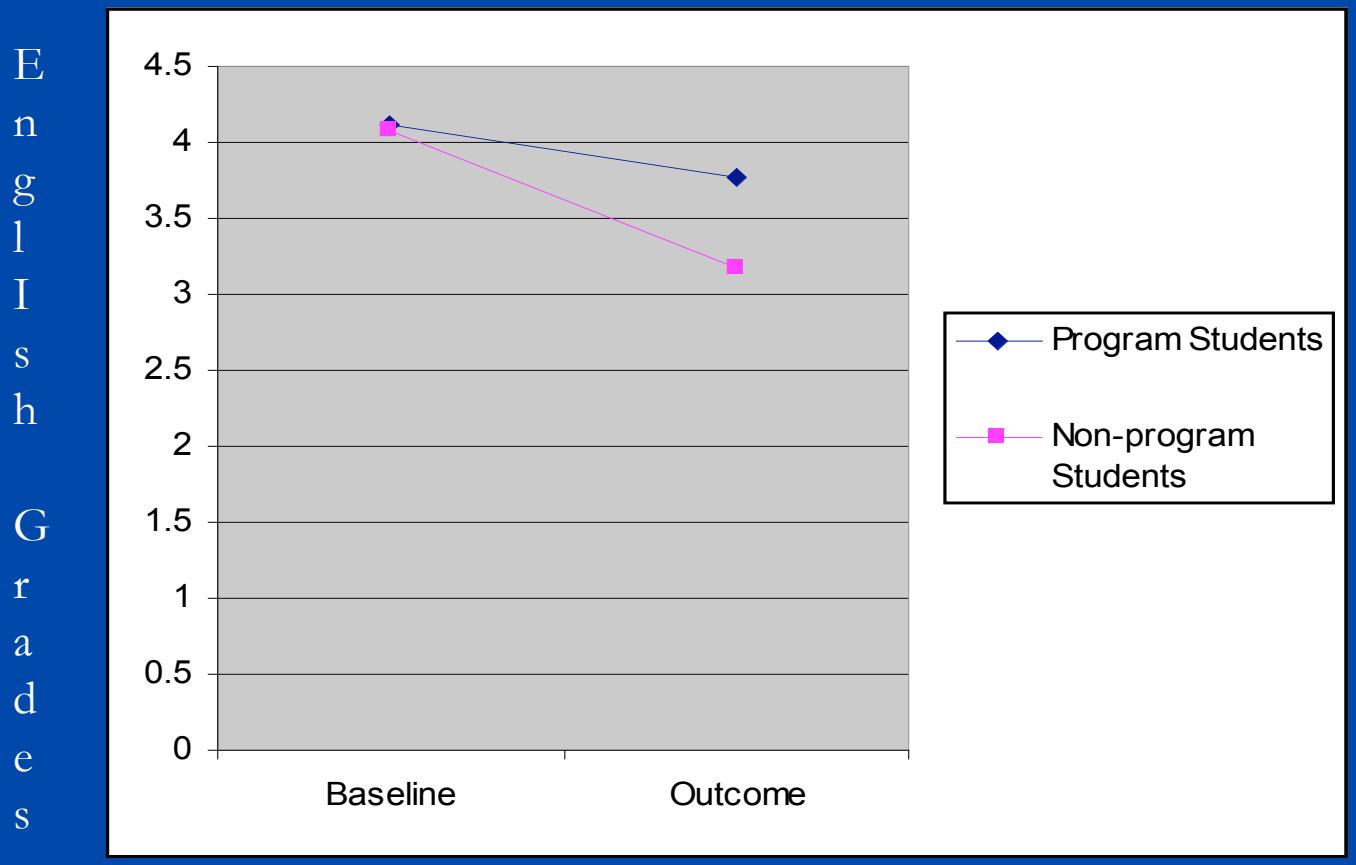
- **Concentrated Effort:** *challenge* (l= .92), *skills* (l = .91), and *concentration* (l = .91). $\alpha$ = .88.
- **Intrinsic Motivation:** *enjoyment* (l2 = .81), *wish* (reversed, l = .78), *choice* (l = .74), and *interest* (l = .61). $\alpha$ = .74
- **Positive Affect:** *proud* (l = .82), *excited* (l = .80), *happy* (l = .72), and *relaxed* (l = .68). $\alpha$ = .75.
- **Negative Affect:** *scared* (l = .80), *worried* (l = .79), *sad* (l = .73), *angry* (l = .59), and stressed (l = .50). $\alpha$ = .76.
- **Apathy:** *bored* (l = .85) and *lonely* (l = .61). $\alpha$ = .43.
- **Flow Conditions:** *challenge* X *skill*, , $\alpha$ = .82.
- **Engagement:** *concentration*, *interest*, and *enjoyment*. ($\alpha$ = .77). (Shernoff, Csikszentmihalyi, & Schneider, 2003).

# *Figure 1*: Difference in Outcomes Between Program and Non-Program Youth




($t = 3.05, p < .01$) ($t = 2.67, p < .01$)

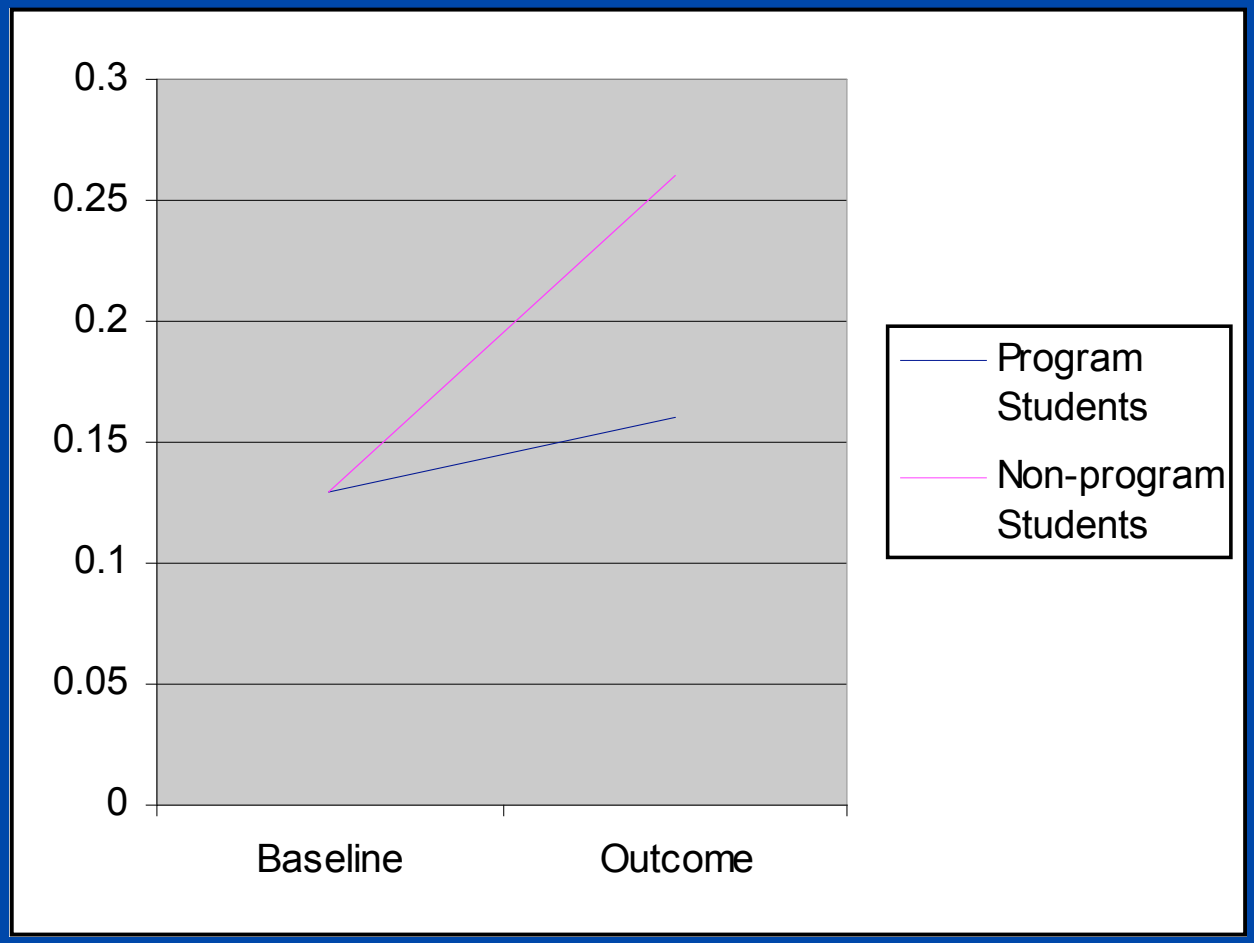
# *Figure 2*: English Grades Baseline to Outcome by Program vs. Non-program Student



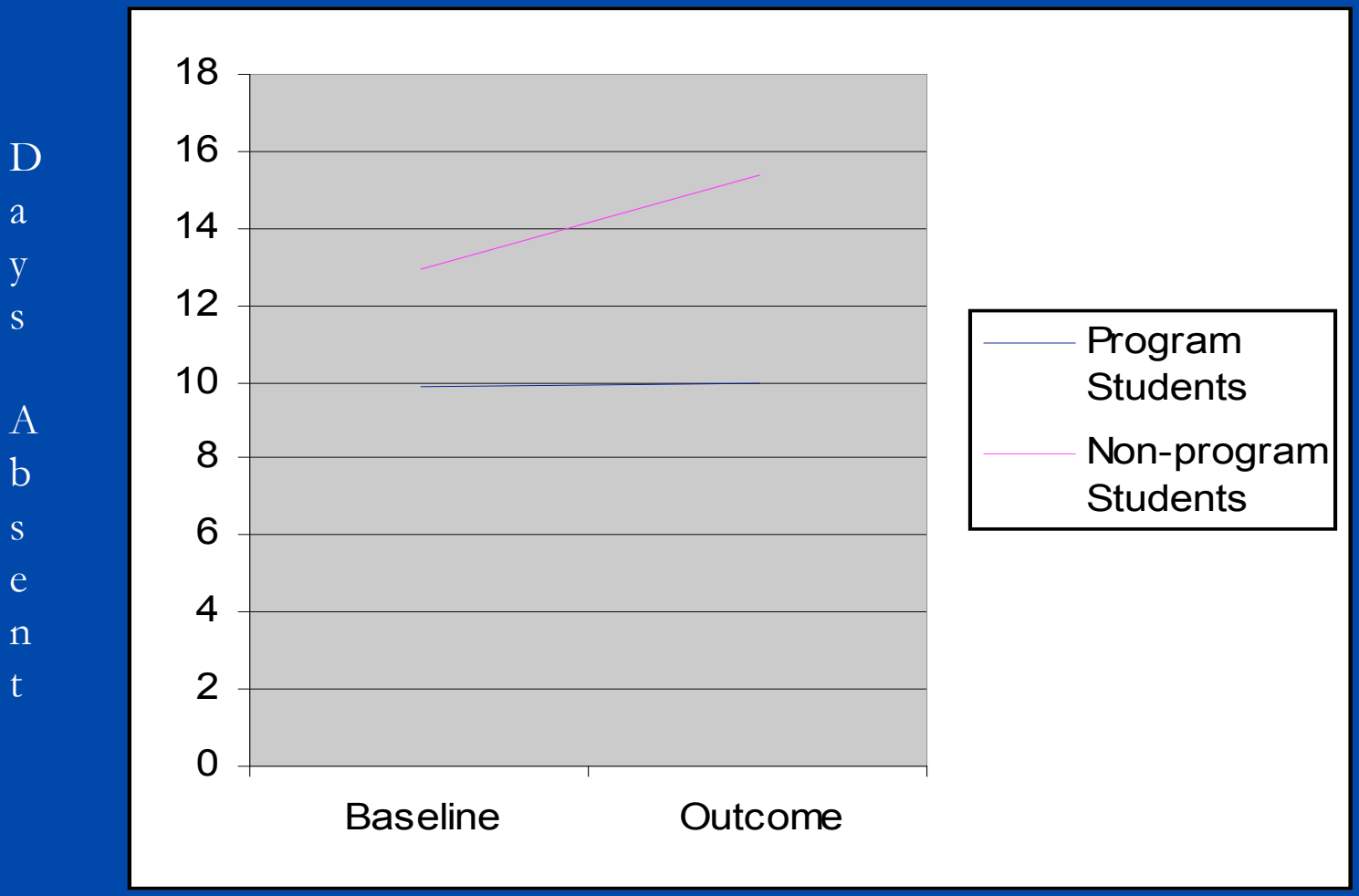

Difference at outcome: $t = 2.67$, $p < .01$

Outcome-baseline difference: $t = 2.59$, $p = .01$

# *Figure 3*: Drug Use Baseline to Outcome by Program vs. Non-program Student

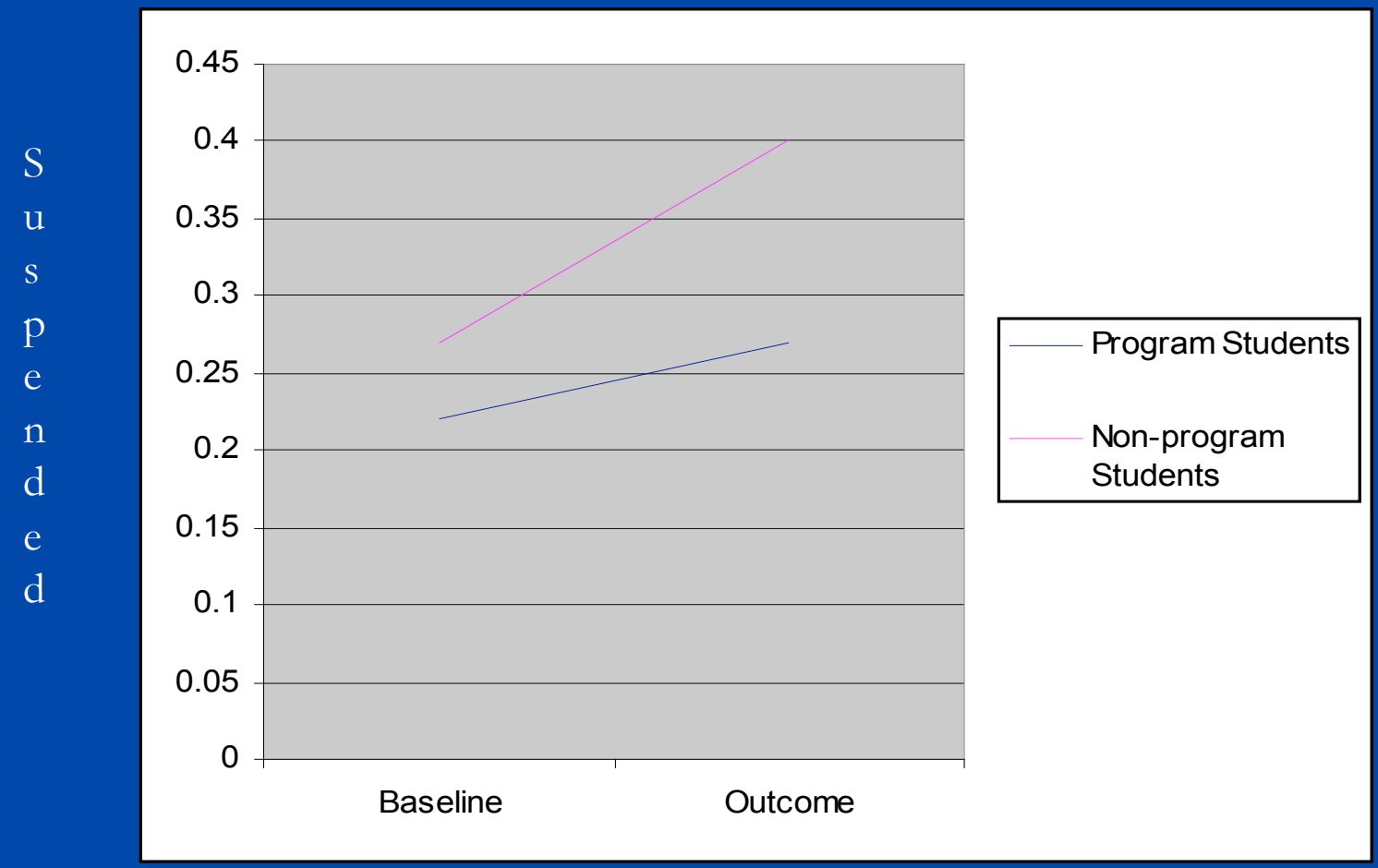


# *Figure 4*: Days Absent Baseline to Outcome by Program vs. Non-program Student




(t = -2.58, p < .05)

# *Figure 5*: Percentage Suspended Baseline to Outcome by Program vs. Non-program Student



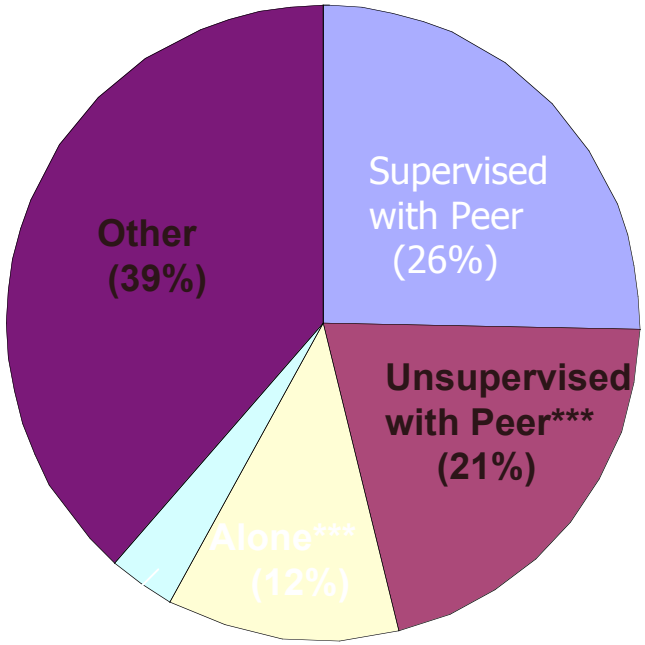
# *Table 2*: Correlations between % Time in Programs, % Time Unsupervised with Peers, and Outcomes

| | % time in after-school program | % time unsupervised w/peers |
|---|---|---|
| (S) School misconduct | 0.02 | 0.21** |
| (S) School engagement | 0.00 | -0.10 |
| (S) Drug use | -0.05 | 0.20** |
| (S) Serious delinquency | 0.05 | 0.33*** |
| (S) Social confidence | 0.08 | -0.02 |
| (T) P-S competence | -0.02 | -0.14 |
| (T) Disruptive in class | 0.20* | 0.13 |
| (T) Absent or late | 0.05 | 0.25** |
| (SR) English | -0.10 | -0.18* |
| (SR) Mathematics | -0.12 | -0.09 |
| (SR) Days absent | -0.09 | 0.17* |
| (SR) Suspended | 0.14 | 0.28*** |

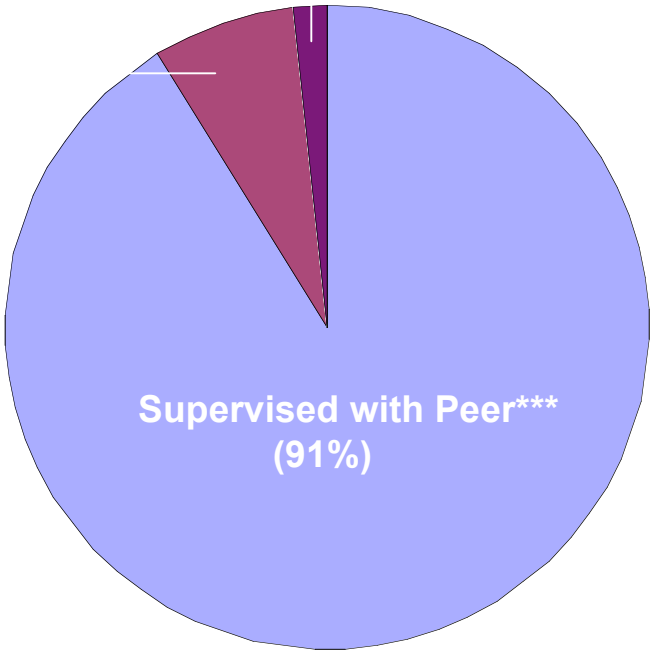
*Note.* $*p < .05$, $**p < .01$, $***p < .001$

# Figure 4: Percentage of in Supervision Categories at Programs vs Elsewhere After School

When Elsewhere




When in Programs




*Note.* Columns may not add up to 100% due to rounding.
HGLM within-persons comparisons, $*p < .05$, $**p < .01$, $***p < .001$

From Vandell, Shernoff, Pierce, Bolt, Dadisman, & Brown (2005)

# *Table 3*: Correlations Experiential Variables During After School Hours and Social Confidence

| Experiential Variable | Correlation with Social Confidence |
|---|---|
| Intrinsic Motivation | 0.29*** |
| Concentrated Effort | 0.28*** |
| Apathy | -0.02 |
| Positive Affect | 0.31*** |
| Negative Affect | 0.04 |
| High Choice, High Concentration | 0.23** |
| High Choice, Low Concentration | 0.20** |
| Low Choice, High Concentration | 0.05 |
| Low Choice, Low Concentration | -0.32*** |

*Note.* $^{**}p < .01$, $^{***}p < .001$

# *Table 4*: Path Coefficients in the Mediation Model, Estimate (Estimate/SE)

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

*Note.* $^{**}p < .01$, $^{***}p < .001$. [a]Statistically significant using MacKinnon's cutoff of .97 for indirect effects (MacKinnon et al., 2002, p. 90).

# *Table 5*: Standardized Differences in Experiential Variables When In vs. Out of Programs

| Variable | Standardized Mean Difference |
|---|---|
| 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** |
| **Challenge** | **0.64** |
| **Skills** | **0.80** |
| **Engagement** | **0.43** |
| **Concentration** | **0.54** |
| **Interest** | **0.30** |
| Enjoyment | 0.17 |

# *Table 6*: Hierarchical Regression Predicting Drug Use from Experiential Benefits of Program

| **Outcome: Drug Use** | **Unsupervised with Peers Coefficient** |
|---|---|
| Step 1 (background controls) | -0.24* |
| Step 2 (+baseline control) | -0.22* |

*Note.* *$p < .05$

## *Table 7*: Hierarchical Regression Predicting Delinquency from Experiential Benefits of Program

| **Outcome: Delinquency** | **Apathy Coefficient** |
|---|---|
| Step 1 (background controls) | 0.18* |
| Step 2 (+baseline control) | 0.14* |
| | **Bored Coefficient** |
| Step 1 (background controls) | 0.21* |
| Step 2 (+baseline control) | 0.15* |

*Note.* *$p < .05$

# *Table 8*: Regression Predicting Outcomes from Experiential Benefits of Program

| **Outcome:**<br>**(T) Psychosocial Competence** | **Relaxed Coefficient** |
|---|---|
| Step 1 (background controls) | -0.20* |
| **Outcome:**<br>**(T) Disruptive Behavior** | |
| Step 1 (background controls) | 0.22* |

*Note.* *$p < .05$

# *Table 9*: Hierarchical Regression Predicting Math Grades from Experiential Benefits of Program

| **Outcome: Math Grades** | **Importance Coefficient** |
|---|---|
| Step 1 (background controls) | .26*** |
| Step 2 (+baseline control) | .21** |
| | **Flow Conditions Coefficient** |
| Step 1 (background controls) | .18* |
| Step 2 (+baseline control) | .10 |
| | **Engagement Coefficient** |
| Step 1 (background controls) | .19* |
| Step 2 (+baseline control) | .12 |
| | **Challenge Coefficient** |
| Step 1 (background controls) | .23** |
| Step 2 (+baseline control) | .16* |
| | **Interest Coefficient** |
| Step 1 (background controls) | .20* |
| Step 2 (+baseline control) | .12 |

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

# *Table 10*: Hierarchical Regression Predicting English Grades from Experiential Benefits of Program

| **Outcome: English Grades** | **Concentrated Effort Coefficient** |
|---|---|
| Step 1 (background controls) | .16** |
| Step 2 (+baseline control) | .09 |
| | **Negative Affect Coefficient** |
| Step 1 (background controls) | .17* |
| Step 2 (+baseline control) | .17* |
| | **Importance Coefficient** |
| Step 1 (background controls) | .22** |
| Step 2 (+baseline control) | .17* |
| | **Flow Conditions Coefficient** |
| Step 1 (background controls) | .15** |
| Step 2 (+baseline control) | .08 |
| | **Engagement Coefficient** |
| Step 1 (background controls) | .22* |
| Step 2 (+baseline control) | .14+ |

*Note.* + $p < .10$, $p < .05$, **$p < .01$,

# *Table 11*: Hierarchical Regression Predicting English Grades (continued)

| **Outcome: English Grades** | **Challenge Coefficient** |
|---|---|
| Step 1 (background controls) | .18* |
| Step 2 (+baseline control) | .12 |
| | **Interest Coefficient** |
| Step 1 (background controls) | .22* |
| Step 2 (+baseline control) | .14+ |
| | **Relaxed Coefficient** |
| Step 1 (background controls) | -.16* |
| Step 2 (+baseline control) | .14+ |
| | **Unsupervised with Peers Coefficient** |
| Step 1 (background controls) | .16** |
| Step 2 (+baseline control) | .15* |
| | |
| | |
| | |

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

# Relative Engagement in Activities as a Predictor of Outcomes

*Z-Scores*:

-Raw scores were converted to *individually-normed* z-scores.

Z-Scores reflect each individuals E.S.M. score *as a standardized deviation away from his or her own mean* for the week being sampled.

# Relative Engagement in Sports as a Predictor of Outcomes

| Outcome | Significant Predictor (after all available controls) |
| --- | --- |
| School Engagement | Engagement |
| Absent or Late | Relaxed |
| Suspended | Stressed (negative association) |
| | Proud |
| Delinquency | Proud (negative association) |
| English Grades | Stressed |
| | Relaxed (negative association) |

# Relative Engagement when Socializing in Programs as a Predictor of Outcomes

**Outcome**

- Suspended
- Absent or Late
- English Grades

**Significant Predictor (after all available controls)**

- Flow Conditions
- Skills
- Concentration
- Proud
- Concentrated Effort (negative)
  Flow Conditions (negative)
- Challenge (negative)
- Concentration (negative)
- Skills (negative)

# Relative Engagement when Completing Homework as a Predictor of Outcomes

**Outcome**

- Misconduct
- Disruptive
- Social Confidence
- English Grades

**Significant Predictor (after all available controls)**

- Negative Affect (negative)
- Relaxed
- Skills
- Concentrated Effort
- Flow Conditions
- Challenge
- Concentration
- Stressed
- Relaxed (negative)
- High Choice / Low Concentration (negative)

# Relative Engagement During Academic Enrichment as a Predictor of Outcomes

| Outcome | Significant Predictor (after all available controls) |
|---|---|
| Misconduct | Engagement (negative) |
| | Angry |
| Absent or Late | Angry |
| Disruptiveness | Intrinsic Motivation (negative) |
| | Enjoyment (negative) |
| | Apathy |
| | Bored |
| Drug Use | Relaxed |
| Serious Delinquency | Intrinsic Motivation (negative) |
| | Engagement (negative) |
| | Enjoyment (negative) |
| | Angry |

# Relative Engagement during Arts Enrichment as a Predictor of Outcomes

| **Outcome** | **Significant Predictor (after all available controls)** |
| --- | --- |
| Misconduct | Importance (negative) |
| Social Confidence | Apathy (negative) |
| | Bored (negative) |

# Relative Engagement while Playing Video Games as a Predictor of Outcomes

| **Outcome** | **Significant Predictor (after all available controls)** |
| --- | --- |
| Serious Delinquency | Angry (negative) |
| School Engagement | Stressed |

# Summary of Findings

- Those participating in programs were more likely to have better English grades, higher social confidence, and future absences, but these associations are all vulnerable to selection effects.
- There is evidence that the increase in social competence is mediated by higher quality of experience in programs. Higher psychosocial competence, and lower drug use and delinquency appear similarly mediated.
- The greatest benefits of programs in terms of quality of experience relate to concentrated effort and conditions for flow: greater challenges, use of skills, and higher concentration. Students are also significantly more engaged and interested during programs.

# Summary of Findings (continued)

- Findings support the notion of programs as serving a protective function warding off risky behaviors.
- The greater challenge and importance of activities in programs, as well as associated (perhaps) negative affect), predicts higher achievement
- Flow conditions and engagement also predict higher achievement (before baseline controls).
- Relative engagement in specific programs also predicts some outcomes, leading to greater identification with school and increases in positive school behavior in a variety of capacities.

# Discussion

- Findings support recommendations for increasing opportunities to participate in structured after-school programs. Programs appear to provide challenging and meaningful opportunities for skill building in a variety of psychosocial and academic domains as an alternative to risky behavior
- Might research *underestimate* some program effects by failing to examine the quality of experiences and specific competencies as they unfold during program participation? Could these factors be more directly related to outcomes and less contaminated by selection effects than the decision to participate itself?