

# Longitudinal Studies of Participation in Structured Activities and Other Out-of-School Settings and Youth Developmental Outcomes

Society for Research in Child Development

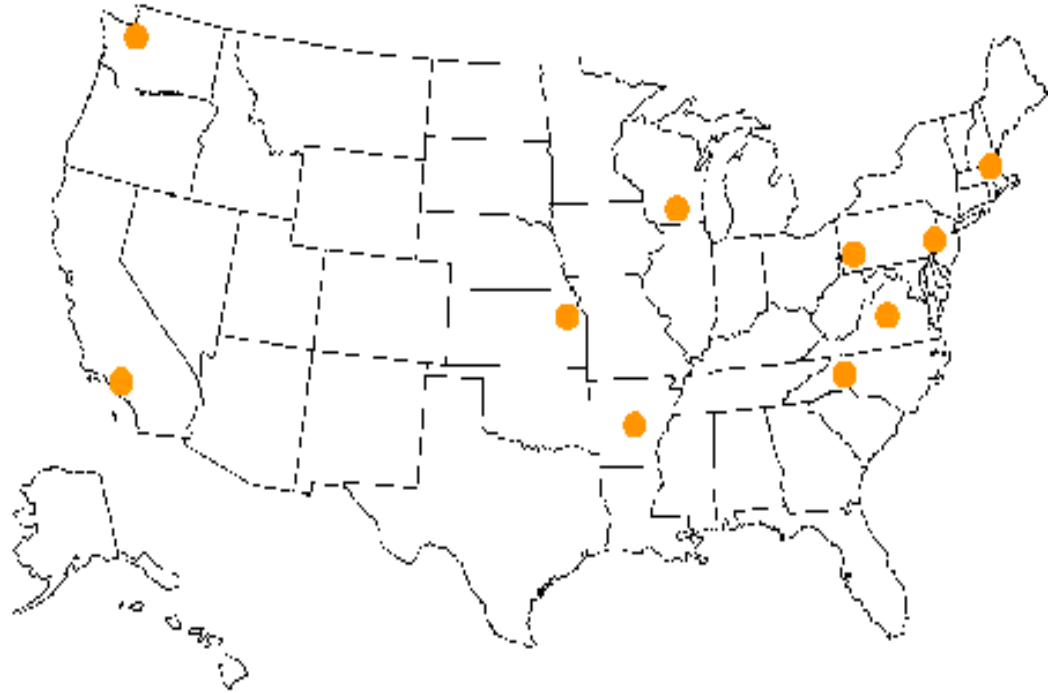
April 20, 2013

# Study of Early Child Care & Youth Development (SECCYD)

- NICHD: Birth to 15 years
- C. S. Mott Foundation: End of high school
- Prospective longitudinal design
- Extensive measures of contexts & outcomes
- 10 data collection sites

# SECCYD Data Collection Sites

- Wellesley, Massachusetts
- Philadelphia, Pennsylvania
- Pittsburgh, Pennsylvania
- Charlottesville, Virginia
- Morganton, North Carolina
- Madison, Wisconsin
- Little Rock, Arkansas
- Lawrence, Kansas
- Irvine, California
- Seattle, Washington



# Study of Promising After-School Programs

- C. S. Mott Foundation
- Prospective longitudinal (2-year) design
- High-poverty communities

California

Montana

Colorado

New York

Connecticut

Oregon

Michigan

Rhode Island

## Auger: SECCYD

- Consistency & intensity of structured activities
- Academic outcomes
- Elementary school

## Li: SECCYD

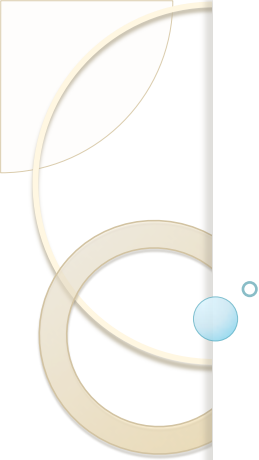
- Quality of experiences in structured activities
- Socioemotional outcomes
- Middle and high school

## Lee: SECCYD

- Time in three out-of-school contexts (& impulsivity)
  - Structured activities
  - Unsupervised with peers
  - Paid employment
- Behavioral outcomes
- High school

## Kataoka: Study of Promising After-School Programs

- Programs/structured activities & hanging out w/peers
- Academic and behavioral outcomes
- Moderation by personal characteristics
- Middle school



# Narrowing the Achievement Gap: Consistency and Intensity of Structured Activities during Elementary School

Anamarie Auger  
Kim M. Pierce  
Deborah Lowe Vandell

April 20, 2013  
SRCB Biennial Meeting



# Acknowledgements


- Charles Stewart Mott Foundation
- Out-of-School Lab at UC Irvine





# Background

- 30% of school children in America participate in structured activities (U.S. Census Bureau, 2009)
- Participation in structured activities at this age is associated with higher grades and increased academic achievement (Fletcher, Nickerson, & Wright, 2003; NICHD Early Child Care Research Network, 2004)
- Low-income children gain extra benefit from participation (Covay & Carbonaro, 2010; Dumais, 2006)

- 
- **Developmental affordances model**  
(Busseri & Rose-Krasnor, 2009)
  - Participation over time and amount of participation are central to model because children must regularly engage in activity settings in order to benefit from what the settings afford
  - Consistency: Regular participation over time
  - Intensity: Amount of time spent participating



# Research Questions

- Are consistency and intensity of participation in structured activities during elementary school associated with academic functioning?
- Are associations of consistency and intensity of activity participation with academic outcomes stronger for children from low-income families?



# Data

- NICHD Study of Early Child Care and Youth Development (SECCYD)
- Prospective, longitudinal study
- 1,364 children followed from birth
- Children who had data on K-5 structured activity participation and at least one Grade 5 outcome ( $n = 1,050$ )

# Analysis Sample Characteristics


	<i>M</i> or %	<i>SD</i>
Female	50%	
Ethnicity		
White	77%	
Black	12%	
Hispanic	6%	
Single-parent household	19%	
Income to needs	4.29	3.40
Maternal education (years)	14.45	2.45



# Measures of Activity Participation


## Maternal interviews

- 2-3x per year, K-5 (14 epochs)
- Amount of time
  - Sports
  - Interest group / club
  - Art, music, performance lessons
  - Academic enrichment / tutoring
  - Religious classes



	Participated	<i>M (SD)</i> min/week, all children	<i>M (SD)</i> min/week, participants
K	48%	40 (64)	82 (70)
Grade 1	61%	56 (74)	92 (75)
Grade 2	66%	72 (82)	110 (77)
Grade 3	55%	53 (79)	96 (85)
Grade 4	59%	59 (86)	100 (91)
Grade 5	58%	74 (102)	127 (106)

88% participated during at least one epoch across K-5

- 
- Consistency: % epochs across K-5
  - Intensity: mean minutes/week across K-5

	<i>M</i>	<i>SD</i>	Range
Consistency	43.8%	30.9%	0-100%
Intensity	58.7	59.1	0-434



# Outcome Measures (End of Grade 5)

- Woodcock-Johnson Psycho-educational Battery-Revised
  - Reading achievement: Passage Comprehension
  - Math achievement: Applied Problems
- Academic performance (grades; teacher report)
- Work habits (teacher report)

	<i>M</i>	<i>SD</i>	Range	Alpha
Reading achievement	105.40	12.35	29-151	
Math achievement	109.37	13.50	37-156	
Academic performance	3.49	0.96	1-5	.95
Work habits	3.71	1.04	1-5	.95



# Analyses

- OLS regression, Grade 5 outcomes
  - Multiple imputation to handle missing data
  - Consistency (% epochs)
  - Intensity (mean minutes/week)
  - Interactions with income-to-needs ratio
  - Controlled for prior functioning and child and family characteristics



# Control Variables

- Prior functioning (54 months or K Fall)
- Child sex & ethnicity
- Maternal education
- Cumulative measures of:
  - Income-to-needs ratio
  - Single-parent household
  - Maternal work hours
  - Maternal sensitivity
  - Classroom instructional quality
  - Classroom positive emotional climate
  - Full-day kindergarten

# Results: Consistency of Participation

	<div>% epochs <math>\beta</math></div>
Reading achievement	.05
Math achievement	.08**
Academic performance	.07*
Work habits	.12***

Coefficients are standardized and can be interpreted as effect sizes.

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

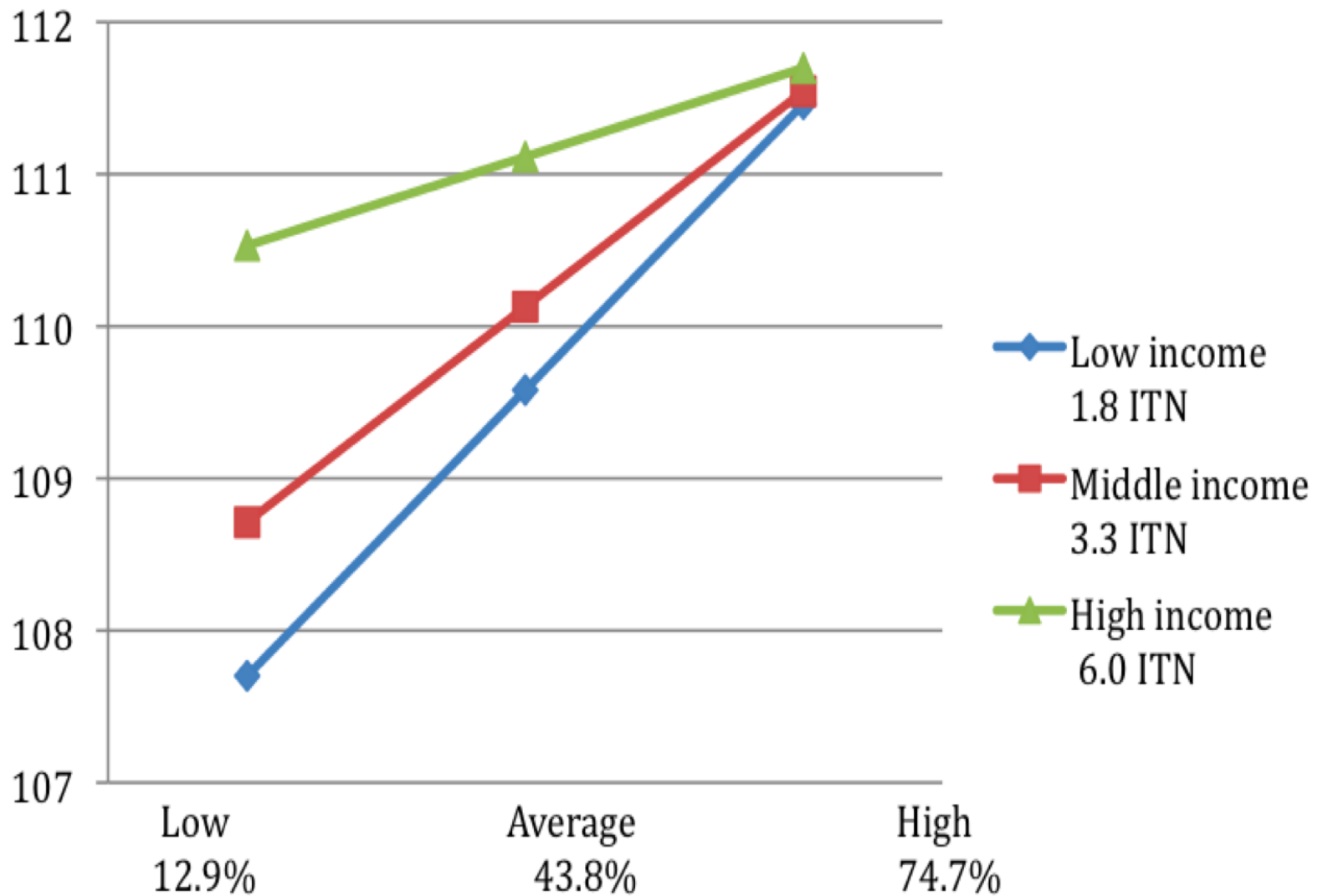


	% epochs $\beta$	% epochs X ITN $\beta$
Reading achievement	.05	-.01
Math achievement	.08**	-.09**
Academic performance	.07*	-.02
Work habits	.12***	-.05

Coefficients are standardized and can be interpreted as effect sizes.

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

Grade 5 Math Achievement




K-5 Activity Participation Consistency

# Results: Participation Intensity

	Minutes/week $\beta$
Reading achievement	-.01
Math achievement	.04
Academic performance	.04
Work habits	.06

Coefficients are standardized and can be interpreted as effect sizes.

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



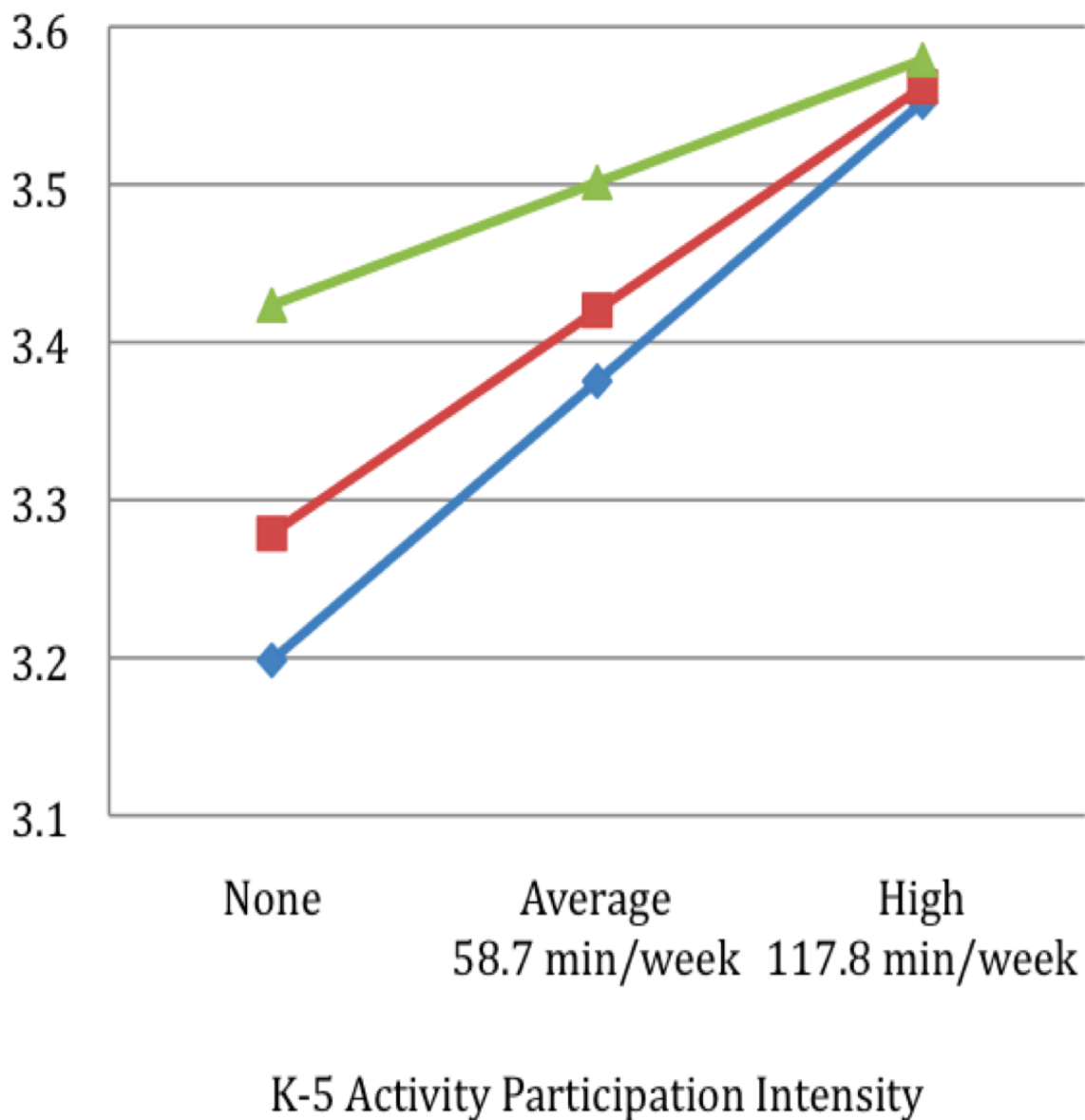
	Minutes/week $\beta$	Minutes/week X ITN $\beta$
Reading achievement	-.01	-.02
Math achievement	.04	-.04
Academic performance	.04	-.02
Work habits	.06	-.09*

Coefficients are standardized and can be interpreted as effect sizes.

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



Grade 5 Work Habits





# Summary of Results

- Consistency of participation
  - Positive associations with math achievement, academic performance, and work habits
  - Moderation by income-to-needs ratio for math achievement
- Intensity of participation
  - No main effects
  - Associations with work habits moderated by income-to-needs ratio



# Discussion

- Results consistent with prior research with elementary samples, even with a more rigorous design accounting for prior functioning
- Similarly, results are consistent with findings from studies with adolescents (e.g., Darling et al., 2005; Fredricks & Eccles, 2006)
- Strengths include longitudinal, prospective design and controls for background and demographic characteristics



# Limitations and Future Work

- Non-experimental design does not allow for causal conclusions
- Study sample not nationally representative, limits generalizability
- Examine participation in specific types of activities and activity breadth
- Replicate with other data sets (ECLS-K)



**THANK YOU!**

augera@uci.edu

# Links between Impulsivity and Out-of-School Activities and Adolescents' Reports of Aggression

Kenneth T.H. Lee & Deborah Lowe Vandell

Society for Research in Child Development  
April 20, 2013

# Background

- Prior research has reported links between individual characteristics and aggression:

↑ Impulsivity  $\approx$  ↑ Aggression

(Barratt, 1996; Maughan et al., 2000)

# Background

- Other research shows links between out-of-school activities and aggression:

↑ Structured activities  $\approx$  ↓ Aggression

↑ Unsupervised time  $\approx$  ↑ Aggression

↑ Paid employment  $\approx$  ↑ Aggression

(Anthony et al., 2009; Mahoney et al., 2004; Roche et al., 2003)



# Research Question

Are impulsivity and participation in various out-of-school contexts uniquely associated with aggression in adolescence?

# Data

- NICHD Study of Early Child Care and Youth Development (SECCYD)
- 10-site prospective, longitudinal study
- 1,364 children followed from birth through the end of high school (EOHS)
- Analysis sample  $N = 765$ 
  - 52% male
  - 81% White

# Impulsivity

## Weinberger Adjustment Inventory

I stop and think things through before I act

I do things without giving them enough thought

	<i>M</i>	<i>SD</i>	Range	Alpha
Age 15	2.49	0.90	1-5	.82
EOHS	2.30	0.83	1-4.9	.81

# Structured Activities

- # days/week in types of activities

Organized sports

Music, dance, drama, arts

Academic clubs

Volunteer/community work

Nonacademic clubs

Religious classes, groups

- Sum of # days/week across all activity types

	<i>M</i>	<i>SD</i>	Range
Age 15	8.02	4.68	0-33
EOHS	5.93	4.38	0-27

# Unsupervised Time with Peers

- # weekdays, 30+ minutes
- # weekend hours
  - 1 = none
  - 2 = < 1 hour
  - 3 = 1-3 hours
  - 4 = 3-5 hours
  - 5 = 5-7 hours
  - 6 = > 7 hours
- Standardized and then averaged

	<i>M</i>	<i>SD</i>	Range
<hr/>			
Weekdays			
Age 15	2.02	1.91	0-5
EOHS	3.02	1.79	0-5
Weekend hours			
Age 15	3.42	2.80	0-8
EOHS	5.30	2.64	0-8

# Paid Employment

- # hours/week
- Ordinal variable

	0	1-10 hours	> 10 hours
Age 15	77%	20%	3%
EOHS	45%	18%	37%

# Outcomes at EOHS

## Aggression Scale (Little, Jones, Henrich, & Hawley, 2003)

### Relational Aggression

I'm the kind of person who tells my friends to stop liking others

I'm the kind of person who gossips or spreads rumors

### Reactive Overt Aggression

When I'm hurt by someone, I often fight back

If others have angered me, I often hit, kick, or punch them

	<i>M</i>	<i>SD</i>	Range	Alpha
Relational aggression	1.33	0.42	1-4	.76
Reactive overt aggression	1.54	0.57	1-4	.83

# Analyses

- Multiple regression
- Multiple imputation
- Cumulative predictors (mean, Age 15 & EOHS)
  - Impulsivity
  - Time in structured activities
  - Time with unsupervised peers
  - Time in paid employment



# Covariates Included in Model

- Gender
- Ethnicity
- Maternal education
- Income-to-needs ratio (Age 15)
- Mother involvement in school (Average)
- Parental supervision and monitoring (Average)
- Prior adjustment (Age 15)

# Results

	Relational Aggression $\beta$	Reactive Overt Aggression $\beta$
Impulsivity	.22**	.23***
Structured activities	-.00	-.01
Unsupervised w/peers	-.05	.10*
Paid employment		
1-10 hours	.07	.01
10+ hours	.06	.01

\* $p < .05$     \*\* $p < .01$     \*\*\* $p < .001$

- Impulsivity is uniquely associated with increases in both relational and reactive overt aggression from Age 15 to EOHS
- Time spent unsupervised with peers is uniquely associated with increased reactive overt aggression
- Amounts of time spent in structured activities and paid employment were not associated with the aggression outcomes

# Future Directions

- Potential mediators or moderators
- Types of structured out-of-school activities
- Types of paid employment

# Thank You

[ktlee2@uci.edu](mailto:ktlee2@uci.edu)

# Oppositional Defiance and Optimism as Moderators of the Relationship between Organized Activity Involvement and Youth Functioning

Sabrina Kataoka & Deborah Lowe Vandell  
University of California, Irvine

Biennial Meeting of the Society for Research in Child Development  
April 20, 2013

# Acknowledgement

Charles Stewart Mott Foundation

# Background

- Prevalence of youth participation in organized activities (e.g., after-school programs, team sports, lessons)
- Organized activity participation related positively to school functioning and negatively to risky behavior outcomes



# Bioecological Perspective

- Bronfenbrenner and Morris
- The person is an active and purposeful agent in the developmental process
- Prior research has largely focused on contextual factors (quality, dimensions of attendance), less research on person factors

# Individual Characteristics

- Oppositional Defiance – defiant behavior toward adults
- Optimism – hope for the future

# Research Questions

1. Does oppositional defiance moderate the relationship between activity participation and youth functioning (i.e., work habits, school absences, drug use, and misconduct)?
2. Does optimism moderate the relationship between activity participation and youth functioning?

# Study of Promising After-School Programs

- 2-year longitudinal study
- Eight states: CA, CO, CT, MI, MT, NY, OR, RI
- 16 high-quality programs serving low-income middle school youth
  - Positive youth-staff relationships, appropriate levels of structure, high levels of student engagement, etc.
- Some youth attended the selected programs, some did not

# Participants

- $N = 695$
- Grades 6 (57%) and 7 (43%) in Year 1
- 50% female
- 71% students of color
- 70% free or reduced-price lunch

# Experiences After School

## Participation in Programs

- Attendance collected from program records
  - 79% of sample attended programs for >10 days across the 2 years

<i>M</i>	<i>SD</i>	Range
74.89	81.68	0-345

# Participation in Other Experiences

- Other organized activities  
(coached sports, school-based activities, and lessons)
- Unsupervised by adults  
(home alone or with siblings, and hanging out with peers)
- Collected from youth three times, 4-point scale:  
1 = not at all/once or twice      3 = 2-3 days a week  
2 = about once a week              4 = 4 or more days a week

	<i>M</i>	<i>SD</i>	Range
Other organized activities	1.97	0.72	1-4
Unsupervised by adults	1.86	0.78	1-4

# Program/Activities vs. Low Supervision

- Grouped students with similar experiences over 2 years in terms of time spent in programs, other organized activities, and without adult supervision

- Two groups of youth

Programs and other organized activities: 76%

Low supervision: 24%



# Oppositional Defiance

- Parent report at baseline
- How often your child...
  - Talks back to adults
  - Is hard to discipline
  - Disobeys adults
- 5-point scale

<i>M</i>	<i>SD</i>	Range	Alpha
1.96	0.93	1-5	.75

# Optimism

- Youth report at baseline
- How sure are you that you will...  
Go to college?  
Finish college?
- 4-point scale

<i>M</i>	<i>SD</i>	Range	Alpha
3.57	0.73	1-4	.91

# Youth Outcomes

## Youth Self-Report

### **Work habits**

I follow the rules in my classroom / I finish my work on time

### **Drug use**

How many times have you...used marijuana? / used other drugs such as inhalants, cocaine, LSD?

### **Misconduct**

How many times have you...broken something on purpose? / skipped school without permission?

	<i>M</i>	<i>SD</i>	Range	Alpha
Work habits	3.17	0.52	1.33-4	.75
Drug use	0.16	0.45	0-4	.79
Misconduct	0.67	0.59	0-4	.83

## School Records

**School absences** (proportion)

<i>M</i>	<i>SD</i>	Range
0.05	0.05	0-.36

# Analytic Plan

- Structural Equation Modeling (SEM)
- Full-Information Maximum Likelihood
- Compare Program/Activities to Low Supervision

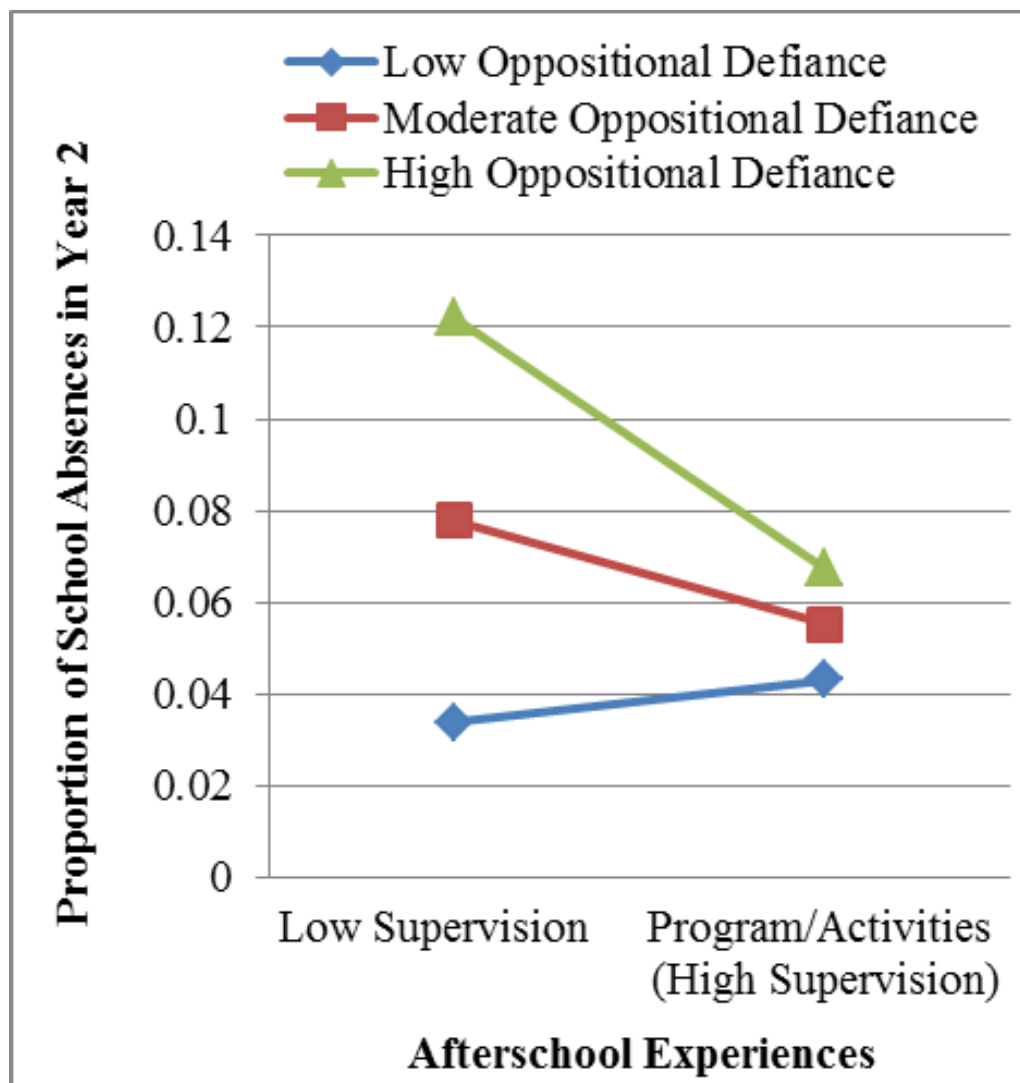
# Covariates

- Gender
- Race/Ethnicity
- Grade Level
- Free or Reduced-Price Lunch
- Baseline Youth Functioning
  - Self-report: Fall of Year 1
  - School absences: School year prior to initiation of study

# Results: Oppositional Defiance

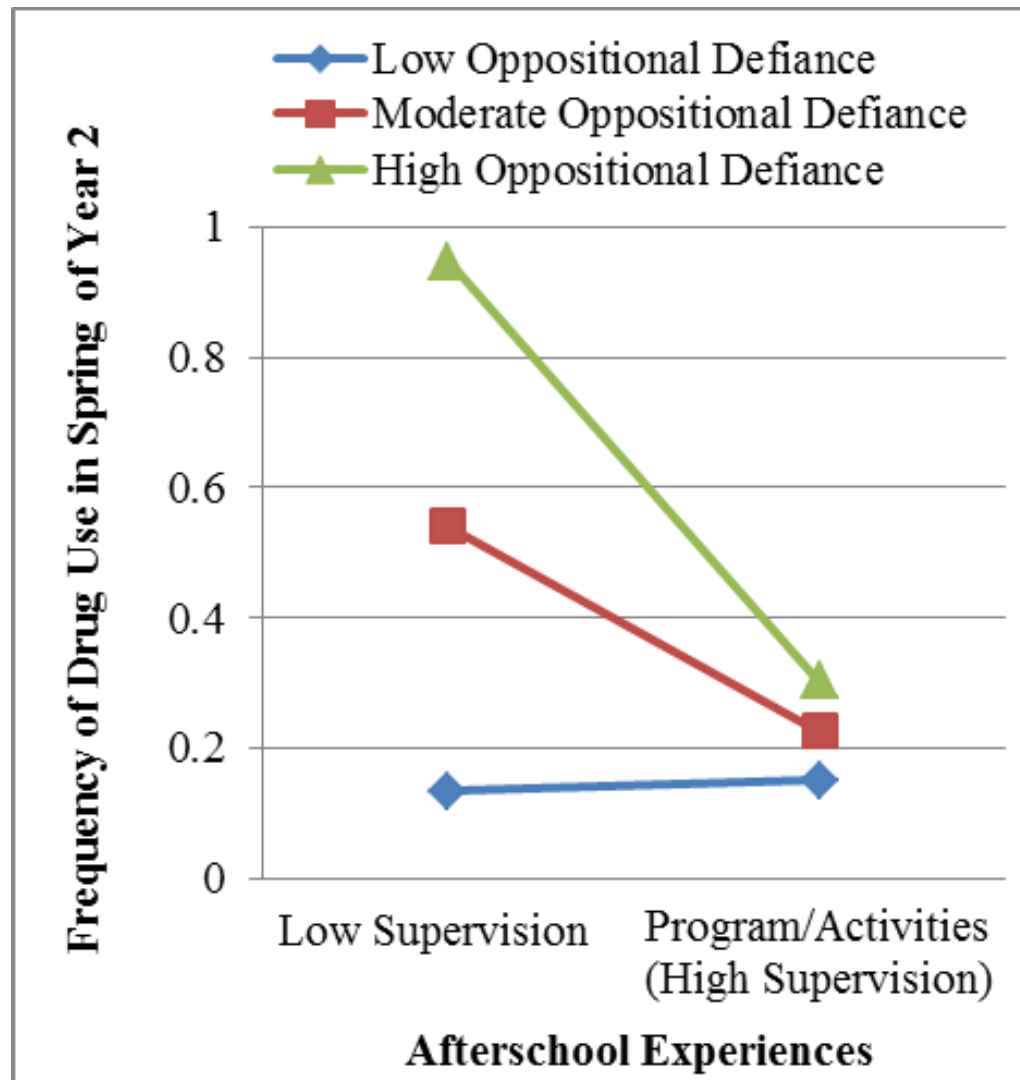
	<u>Youth Functioning at End of Year 2</u>			
<u>Predictors</u>	Work Habits $\beta$	School Absences $\beta$	Drug Use $\beta$	Misconduct $\beta$
Independent Variables				
Program/Activities vs. Low Supervision (Over 2 Years)	0.08*	-0.04	-0.13**	-0.20***
Oppositional Defiant Behavior (Baseline Parent Report)	-0.16***	0.12**	0.16***	0.15***
Interaction				
Program/Activities x Oppositional Defiant Behavior	-0.01	-0.08*	-0.15***	-0.04

# Afterschool Experiences and School Absences Moderated by Oppositional Defiance





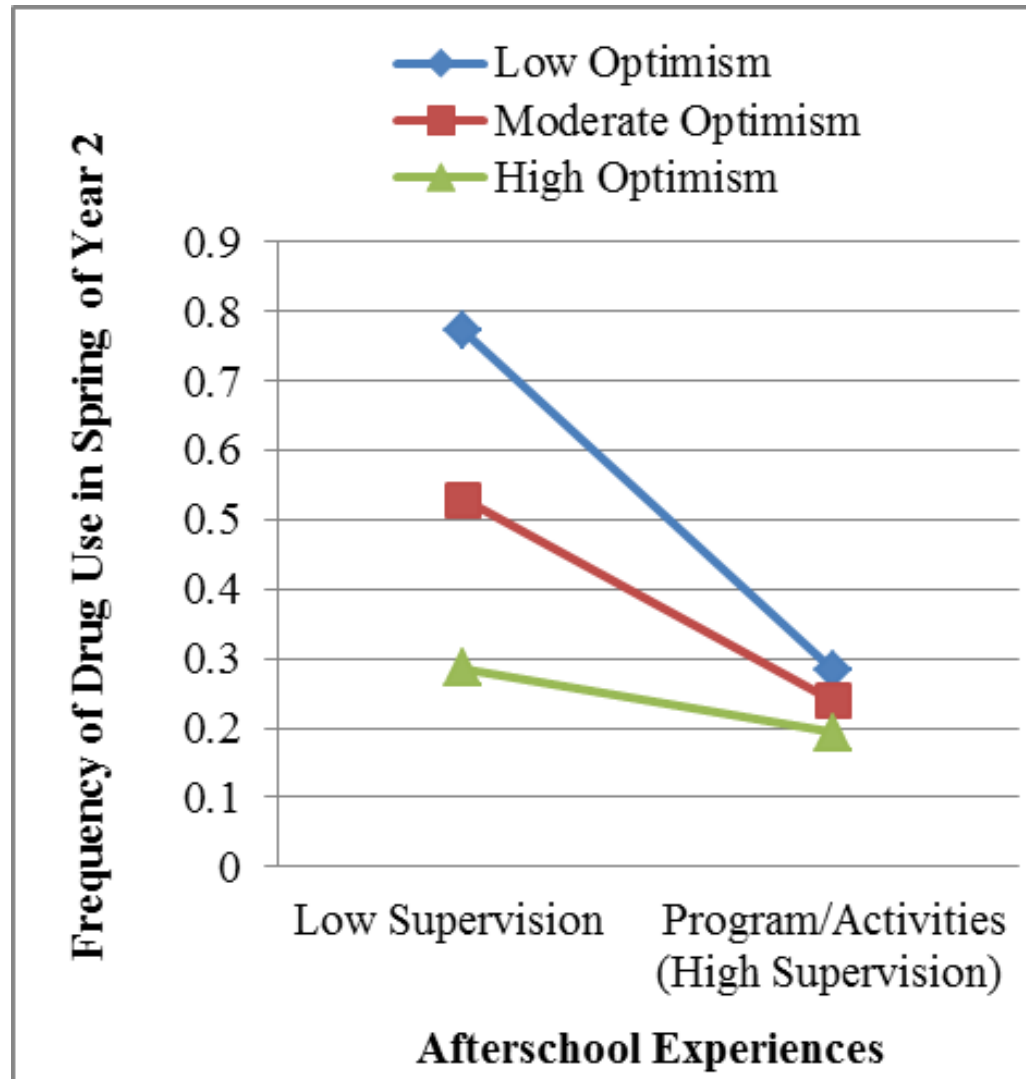
# Afterschool Experiences and Drug Use Moderated by Oppositional Defiance



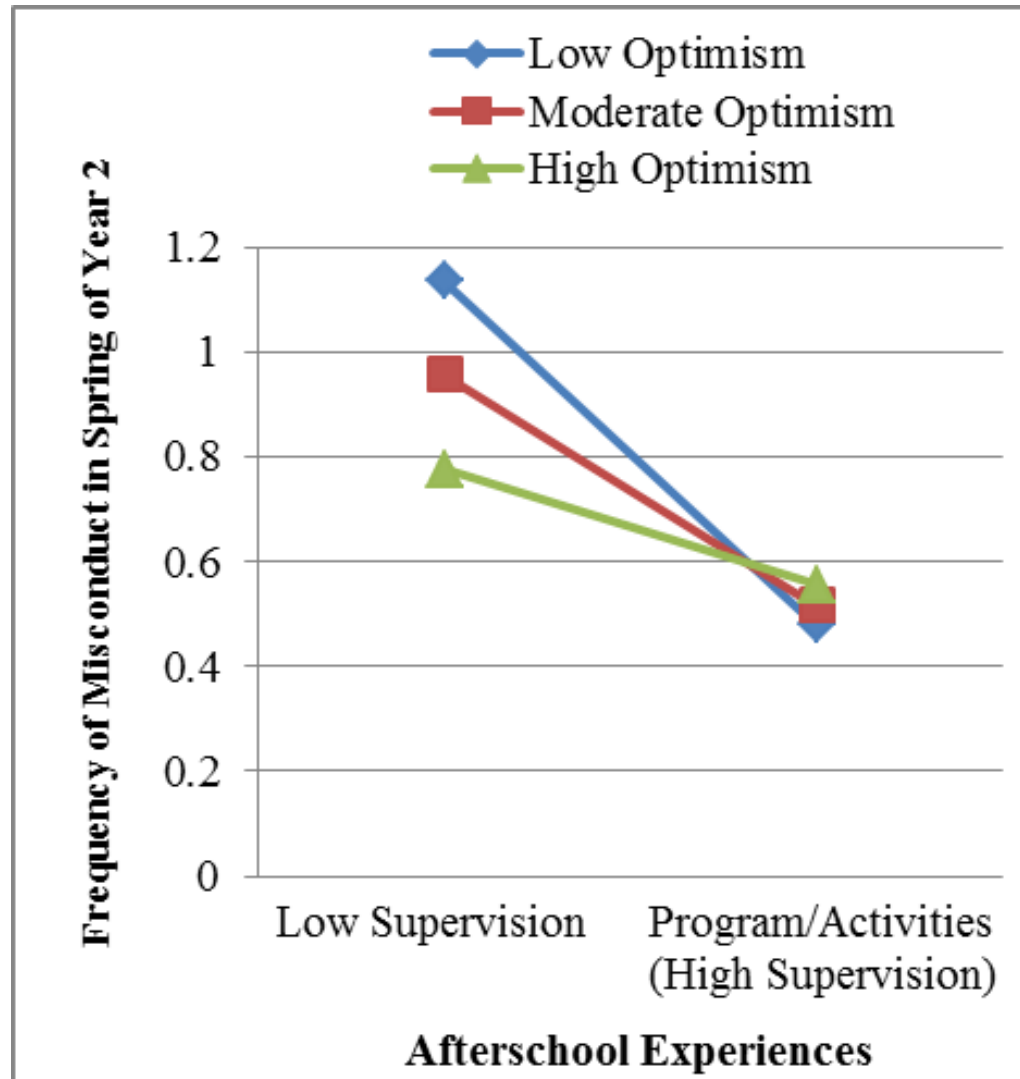
# Results: Optimism

<u>Predictors</u>	<u>Youth Functioning at End of Year 2</u>			
	Work Habits $\beta$	School Absences $\beta$	Drug Use $\beta$	Misconduct $\beta$
<b>Independent Variables</b>				
<b>Program/Activities vs. Low Supervision (Over 2 Years)</b>	0.09*	-0.05	-0.14**	-0.20***
<b>Optimism (Baseline Youth Report)</b>	0.04	-0.06	-0.10*	-0.01
<b>Interaction</b>				
<b>Program/Activities x Optimism</b>	-0.06	-0.05	<b>0.09*</b>	<b>0.08*</b>

# Afterschool Experiences and Drug Use Moderated by Optimism



# Afterschool Experiences and Misconduct Moderated by Optimism



# Conclusions

Associations over 2-year period differed by youths' psychological characteristics

Participation in organized activities, compared to low supervision after school, was particularly beneficial for youth who exhibited

- High oppositional defiance
- Low optimism

# Future Directions

For whom and under what circumstances organized activity participation fosters positive youth outcomes

Examine adolescents' psychological characteristics (e.g., self-regulation, optimism, perseverance) as they

- moderate and mediate the person-context relations of youth development
- influence selection into activities

Understand where quality of organized activities and various dimensions of afterschool participation fit in

# Contact Information

Email: [kataokas@uci.edu](mailto:kataokas@uci.edu)