

Introduction

❖ School success has life-course developmental implications

- includes **academic achievement** and **school adjustment**
- Has long-term impact on post-secondary educational attainment, later adult income, mortality, and life quality (e.g. Ganzach, 2000; Haveman & Wolfe, 1984; Muller, 2002)

❖ Early adolescent years are critical period

- Tremendous developmental changes that impact academic engagement and success (Eccles & Wigfield, 1997; Simmons & Blyth, 1987)
- Cognitive change and emerging psychological needs lead to the **self-regulation** development and dynamics in **family** and **school** settings (Zimmerman, 1989; Fosco et al., 2014; Pajares & Schunk, 2001)

❖ Three important domains from existing studies

- **Family Climate**
e.g., Kurdek et al., 1995; DuBois et al., 1994
- **Academic Self-Regulation (ASR)**
e.g., Nota et al., 2004; Zimmerman & Schunk, 2013
- **School Attachment**
e.g., Goodenow & Grady, 1993; Reddy et al., 2003

❖ Reciprocal influence among three domains

- **Family systems theory** and **ecological theory** underscore the reciprocal influences of individual, family, and school context
- Capturing the **reciprocal influence among three domains is important in the early adolescent years** when all of these domains undergo such tremendous changes
- Existing studies supported the reciprocal influence between each two domains in relevant isolation e.g. Lee et al., 2007; Anderman 2003; Booth & Dunn, 2013
- **However, adolescents experience these changes across contexts simultaneously**, and changes in each domain undoubtedly impact their school success

The Current Study

Aim 1: Reciprocal Influence

- to examine the reciprocal influences among family climate, ASR, and school attachment during early adolescent years
- **Hypothesis:** there are reciprocal associations between family climate, ASR, and school attachment over four waves.

Aim 2: Predict School Success

- to test the unique, relative impact of each of these domains for adolescents' academic achievement and school adjustment
- **Hypothesis:** family climate, school attachment, and ASR in 8th grade would each have unique implications for both academic achievement and school adjustment at the end of 9th grade.

Method

Participants and Procedure

- Families were drawn from the PROSPER project; Approximately 43% of those invited participated
- In-home written questionnaires were completed independently by each family members during in-home interviews
- 58.6% (N=574) were in intervention group at W1; Good retention for the whole sample (75.5% at W5)

	W1	W2	W3	W4	W5
Data collection time	6 th grade (2004 Fall)	6 th grade (2005 Spring)	7 th grade (2005 Fall)	8 th grade (2006 Fall)	9 th grade (2007 Fall)
Adolescent age (M)	11.3 (SD=.49)	11.9	13.0	13.9	14.9
Retention					
Control	--	80.7%	80.0%	75.8%	75.1%
Intervention	--	84.5%	83.1%	82.4%	75.8%
Missingness associates demographic					
Parents' education	--	.17**	.22**	.18**	.19**
Household income	--	.07*	.10**	Ns	Ns

Demographic Information

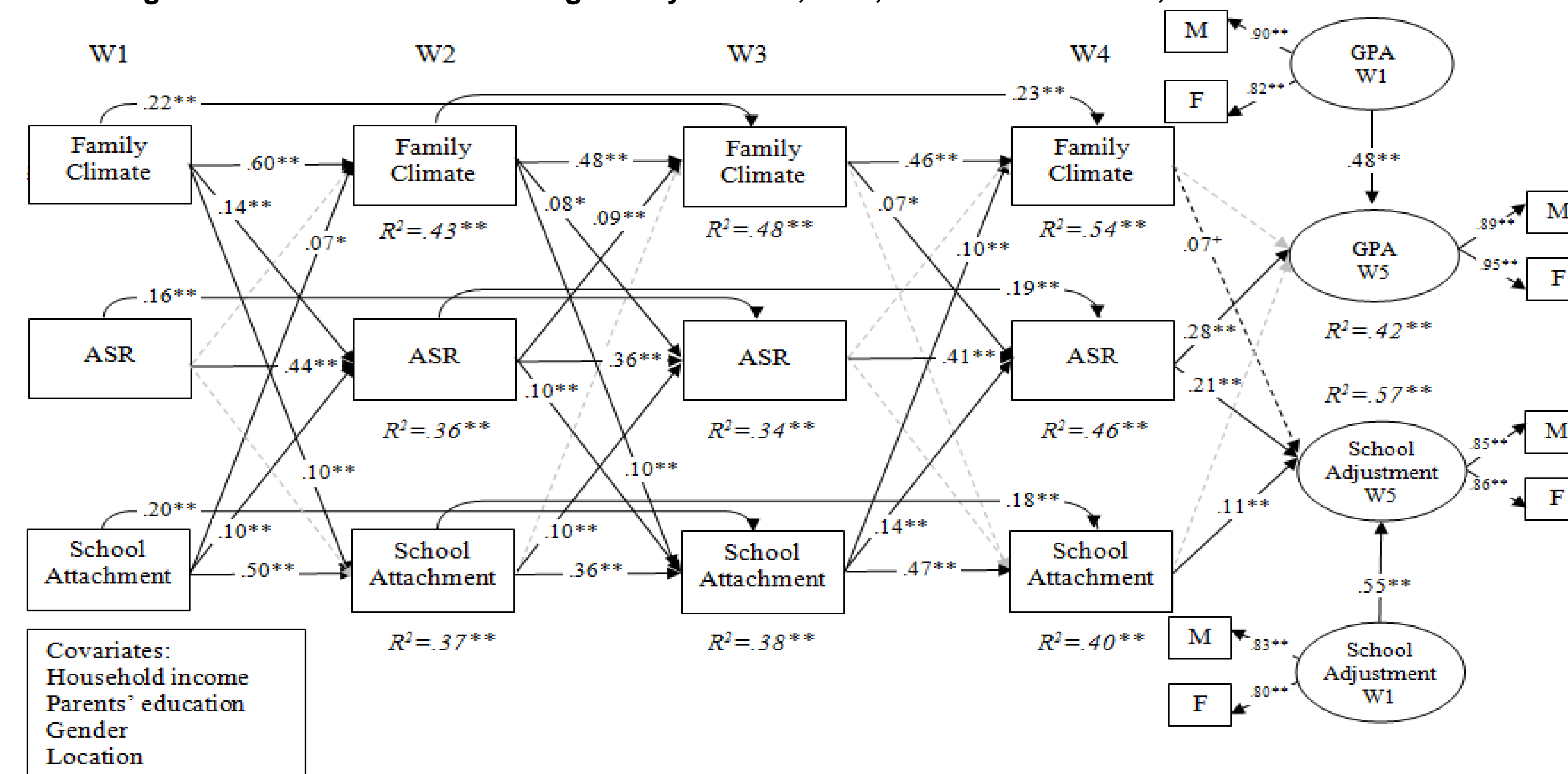
	W1
N	979
Gender	47.5% male, 52.5% female
Location	61% IA, 39% PA
Household income	\$50,963 (in 2004)
Parents' education	62% post-secondary education
Two-parent family	78%
Ethnicity	87.2% White, 6.1% Hispanic, 2.4% African American, .01% Native American, .05% Asian, 2% Other

Measures

Variables	Reporter	Wave	Measures	α
Family climate	Adolescents	W1-W4	Family Environment Scale (Moos & Moos, 1994)	.80-.87
ASR	Adolescents	W1-W4	Multidimensional Scale of Perceived Self-Efficacy (1989)	.76-.83
School attachment	Adolescents	W1-W4	School Liking Scale (Schaufeli et al., 2002)	.80-.83
			Loneliness Scale (Asher & Wheeler, 1985)	.92-.94
Academic achievement	Parents	W1 & W5	GPA	-- ($r=.71-.81$)
School adjustment	Parents	W1 & W5	School Adjustment Questionnaire (CPPRG,1999)	.82-.87 ($r=.62-.72$)

Results

Figure 1. Structural Model among Family Climate, ASR, School Attachment, and School Success



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

Significant covariates paths include:

$\beta_{state \rightarrow school\ adjustment\ w5} = -.15^{**}$, $\beta_{state \rightarrow academic\ achievement\ w5} = -.07^*$, $\beta_{household\ income \rightarrow academic\ achievement\ w5} = .11^{**}$,
 $\beta_{household\ income \rightarrow family\ climate\ w4} = .07^*$, $\beta_{household\ income \rightarrow ASR\ w2} = .08^*$, $\beta_{gender \rightarrow ASR\ w4} = -.07^*$, $\beta_{gender \rightarrow school\ attachment\ w4} = -.11^{**}$.
 Model fit: $\chi^2(133) = 285.658$, $p < .001$; CFI = .980; TLI = .961; RMSEA = .034 (90%: .029-.040); SRMR = .04.

- Invariance test indicated there was no significant difference between intervention and control groups

Discussion

❖ The Interplay between Family Climate, School Attachment, and ASR

1. Family climate \rightarrow ASR

- Family climate plays role for self-regulation skills generally (e.g. Fosco & Grych, 2013; Strage, 1998)
- Implicates family relationships effects on ASR specifically (e.g. Lee et al., 2007; Pino-Pasternak et al., 2010)

2. Family climate \leftrightarrow School attachment

- Adolescents in families with a more positive climate reported increases in their feeling of school over time
-Through constructive coping style and better social competence (e.g. Shulman et al., 1987; Aunala et al., 2000)
- Adolescents who felt a stronger connection with school also reported increasingly positive family relationship over time
-Through promotion in psychological adjustment and emotional spillover across contexts (e.g. Crouter, 1984; Williams & Alliger, 1994)

3. School attachment \rightarrow ASR

- Feeling connection to school can increase students' motivation and self-efficacy in academic tasks (e.g. Goodenow & Grady, 1993; Kia-Keating & Ellis, 2007)
- Feeling bonding to peers and teachers at school can promote self-regulation ability and self-regulated learning strategies using (e.g. Ee et al., 2003; Novak & Clayton, 2001)

❖ Additive Effects on School Success

1. School attachment \rightarrow School adjustment

- School attachment is well-documented associating with school adjustment and adolescent health (e.g. Catalano et al., 2004)
- Our finding replicate and extend this literature by accounting family and individual factors in the same model

2. Family climate \rightarrow School adjustment

- Consistent with literature that documents multiple family factors influencing students' adjustment, especially on school adjustment (e.g. Christenson et al., 1992; Kurdek et al., 1995)
- Less stressful family experience lead to less negative family or self-attribution which undermine school success (Harold et al., 2008)

3. ASR \rightarrow School adjustment and Academic Achievement

- ASR skills set the foundation for academic achievement (Zimmerman & Schunk, 2013)
- ASR lead to better academic tasks completion and better teacher-student relationship which contribute to school adjustment (Trentacosta & Shaw, 2008)

❖ Limitation and Future Direction

1. Primarily comprised by White sample
2. Mono-informant assessments in cross-lagged model
3. Additional expansion of ecological factors
e.g. teacher-student relationship, or peer influences

❖ Implications for Intervention Research

1. Call for cross-context integration in intervention and prevention programs
 - Combine individual, family, and school domains
2. ASR should be primary focused on in intervention programs targeting on school success
 - ASR is the predominant proximal factors for both academic achievement and school adjustment
3. Both family and school contexts can serve as protective factors accompanying ASR in intervention process
 - Both family and school factors have direct effect on the increases of ASR