

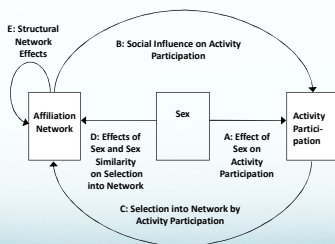
Dynamic Social Network Analyses of Friendship and Adolescent Substance Use

- **Osgood, Ragan, Wallace, Gest & Feinberg:** Why Do Adolescents Who Drink Have More Friends? Friendship Dynamics and the Emergence of Alcohol Use
- **Cheadle & Crosnoe:** Becoming Friends and the Friends of Friends: Alcohol Use, Gender, and Social Integration in American High Schools
- **Delay, Laursen, Kiuru, Salmela-Aro, Nurmi:** Selecting and Retaining Friends: Cigarette Smoking Similarity Among Adolescent Friends

Two Possible Future Directions

- Moving towards even more dynamic models of peer selection and socialization on substance use and 'problem behavior activities'.
- Using network analysis to motivate and evaluate school based preventive interventions.

Martin, Kornienko, Schaefer, Hanish, Fabes, and Goble (under review): The Role of Sex of Peers and Gender-Typed Activities in Young Children's Peer Affiliative Networks: A Longitudinal Analysis of Selection and Influence



	Wave 1	Wave 2	Wave 3	Wave 4
Child Level				
Number of children observed	283	301	282	272
Mean Number of Ties Per Child	6.56	6.77	6.48	6.01
Std. dev.	3.05	2.78	2.80	3.04
Boys				
Mean Masculine Activities	3.34	3.43	3.16	2.76
Std. dev.	1.14	1.33	1.08	1.11
Mean Feminine Activities	1.85	1.75	1.56	1.62
Std. dev.	0.93	0.92	0.65	0.82
Girls				
Mean Masculine Activities	2.31	2.36	2.02	1.75
Std. dev.	1.05	1.00	0.91	0.91
Mean Feminine Activities	2.90	2.94	2.90	2.88
Std. dev.	1.13	1.21	1.04	1.11
Network Level^a				
Jaccard Index (network stability compared to prior wave) ^b	N/A	.402	.387	.474
Masculine Activity Homophily (Moran's I) ^c	.23	.21	.30	.30
Feminine Activity Homophily (Moran's I) ^c	.22	.27	.33	.42
Sex Segregation Odds Ratios	3.45	3.14	4.32	4.36
95% CI	(3.05, 3.90)	(2.77, 3.54)	(3.80, 4.92)	(3.81, 4.99)

Table 2
Coefficient Estimates and Standard Errors from SAB Analysis

	Baseline	Selection	Socialization	Over Time
	b (SE)	b (SE)	b (SE)	b (SE)
Network Dynamics				
Sex ^a	0.08 (0.05)	0.01 (0.10)	0.01 (0.09)	-0.03 (0.12)
Sex Similarity	0.71 (0.04) ***	0.60 (0.05) ***	0.56 (0.06) ***	0.58 (0.06) ***
Masculine Activities		0.01 (0.06)	0.02 (0.06)	0.01 (0.06)
Masculine Activities Similarity		0.78 (0.20) ***	1.02 (0.52) *	1.00 (0.14) *
Feminine Activities		0.10 (0.06) +	0.09 (0.06) +	0.10 (0.07)
Feminine Activities Similarity		0.61 (0.20) *	0.72 (0.36) =	0.69 (0.28) +
Period x Sex				-0.23 (0.14)
Period x Sex Similarity				0.08 (0.07)
Period x Masculine Activities				0.04 (0.06)
Period x Masculine Activities Similarity				-0.12 (0.48)
Period x Feminine Activities				0.04 (0.07)
Period x Feminine Activities Similarity				-0.08 (0.29)
Behavior Dynamics				
Masculine Activities				
Sex Effect on Behavior	-0.45 (0.05) ***	-0.45 (0.05) ***	-0.40 (0.06) ***	-0.42 (0.07) ***
Average Peer Effect			0.51 (0.06) ***	0.46 (0.08) ***
Period Effect on Behavior				-0.14 (0.04) ***
Period x Average Peer Effect				0.04 (0.07)
Feminine Activities				
Sex Effect on Behavior	0.77 (0.09) ***	0.77 (0.10) ***	0.73 (0.11) ***	0.72 (0.08) ***
Average Peer Effect			0.69 (0.10) ***	0.70 (0.10) ***
Period Effect on Behavior				0.09 (0.06)
Period x Average Peer Effect				0.14 (0.09) +

*** p < .001, ** p < .01, * p < .05, + p < .10

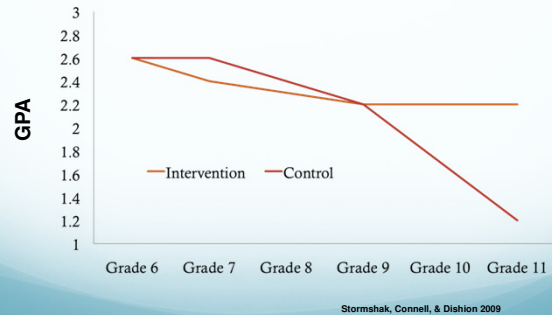
Data Based Decision Making in School Middle Settings: The Check Up Approach



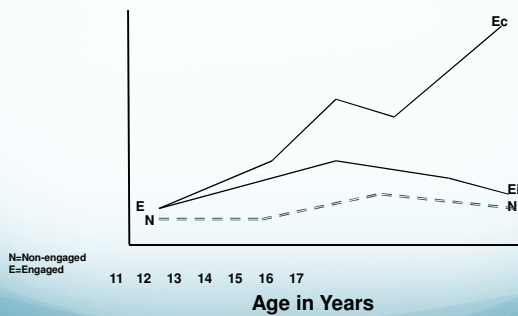
Types of Network Interventions Possible

- **Proximity:** Classroom assignment and social design to avoid clustering high risk youth in the same classes and to optimize peer integration.
- **Increase Positive Behavior Support:** Use well-established strategies for improved universal management of problem behavior and promotion of student school engagement.
- **Increase prosocial opportunities:** Provide opportunities for youth involvement in supervised prosocial activities that promote integration and positive youth development
- **Selected family-centered support:** Engage parents of high risk youth in interventions that enable their involvement and support of youth prosocial development.

Middle School Intervention effects on GPA from early to late Adolescence (PAL 1)



Probability of Arrest from Age 11 through 17 as a Function of Family Check Up Intervention Engagement (Connell, Dishion et al, 2007).



Concluding Comments

- All three papers address significant research questions, sophisticated modeling of peer network influence (SIENA), and provide interesting new information the complexity of drug and alcohol use and friendship formation, dissolution and influence.
- It is possible to study these questions using even more dynamic approaches in terms of direct observation and more frequent measurement.
- It may be time to move from a correlational science to evaluate how networks can be changed through health promotion activities that are randomly assigned.