

# School Extracurricular Activity Participation and Early School Dropout: A Mixed-Method Study of the Role of Peer Social Networks

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## Abstract

This longitudinal study employs a mixed-method design to study associations between participation in school-based extracurricular activities, as measured using school yearbooks, and rates of early school dropout. The role of peer social networks that surround activity participation is of particular interest. Results show that the peer social networks of adolescents overlap significantly with the particular types of extracurricular activities in which they participate over time. Processes of selection and socialization that include the use of social aggression appear to regulate changes in activity membership. When both the individual and his/her social network participate in extracurricular activities the risk of early school dropout is diminished significantly. This activity-associated reduction in dropout is pronounced for youth previously identified as highly aggressive by school personnel.

**Keywords:** extracurricular activities, school dropout, peer networks, aggression, developmental

## 1. Introduction

### 1.1 School Dropout

School dropout continues to be significant problem in the United States (U.S.) (Chapman, Laird, Ifill, & KewalRamani, 2011). Status dropout provides a common estimate of dropout rates in the U.S. by measuring dropout for a group of individuals between the ages of 16-24. The U.S. status dropout rate was 8.1% in 2009. Although a historic decline occurred in status dropout between 1972 (14.6%) and 2006 (9.3%), the dropout rates remain high for at-risk populations and continue to be a source of significant physical, social, and economic cost to both the individual and nation. For example, youth dropout rates for immigrants (31.3%), Hispanics (17.6%), those with disabilities (15.5%), and Blacks (9.3%) typically exceed the national average. Moreover, 2.4% and 4.4% of 16- and 17-year-olds are early school dropouts, respectively. Early school dropout represents a special problem for young people because it accelerates them into adult roles and responsibilities before adult social-cognitive capacities have developed to maturity. These individual deficits also often coincide with more limited social-economic resources compared to older students that leave school.

Dropout is costly in the U.S. (Chapman et al., 2011). Comparing average earnings of dropouts and those that complete formal schooling shows a difference of \$23,000 vs. \$43,000, respectively. This amounts to an approximate difference of \$630,000 in lifetime earnings. Moreover, dropouts tend to experience poorer health, higher criminality, lower tax contributions, and greater reliance on Medicare, Medicaid, and Welfare than high school completers. These differences contribute to an additional economic loss of \$240,000 per high school dropout for the nation. When viewed as a whole, the individual and national consequences of school dropout are staggering.

### 1.2 Guiding Theoretical Perspective on Development

A network of internal and external aspects influences individual developmental trajectories from childhood through adulthood (Bronfenbrenner & Morris, 2006; Magnusson & Stattin, 1998; Sameroff, 1983). Individual, social, and ecological aspects are fused during the course of ontogeny and work in concert over time to support individual behavior. Accordingly, single aspects of the developmental systems are functionally related to one another and with the individual's history of prior developmental experiences.

In this view, individuals function as holistic, integrated organisms. Because features of the developing systems are interrelated, the functioning of any one aspect affects the operation of other elements or sub-systems. This co-action between components of the system constrains possibilities for the overall functioning of the system. In other words, the operation of the system at one point in development exerts a “constraining inertia” with respect to probable patterns of relations between aspects of the system in the future. Thus, continuity in the functioning of the developmental system is normative. This helps to explain the regularity in behavior patterns – including problematic and antisocial behaviors predictive of early school dropout – over time and across contexts.

Consistent with this perspective, children at risk for persistent adjustment problems and school failure tend to be characterized by profiles of individual, social, and economic disadvantage rather than by isolated problems (Cairns, Cairns, Neckerman, 1989; Mahoney & Cairns, 1997; Zarrett, Fay, Li, Carrano, Phelps, & Lerner, 2009). Often, a cascade of behavior problems — from few to many, and from minor to severe — occurs over time (Bergman & Magnusson, 1992). However, a similar process of positive development may occur with early assets building upon one another over time that can change the pattern of risk (Lewin-Bizan, Bowers, & Lerner, 2010).

### *1.3 Social Networks and Individual Adjustment*

In addition to individual behaviors such as aggression, the risk of early school dropout is influenced by social relationships. A reliable finding in psychological research is that children and adolescents tend to affiliate with persons who are like themselves in multiple respects (Brechwald & Prinstein, 2010; Cohen, 1977; Kandel, 1978). This similarity found in children’s peer relationships – known as homophily – characterizes both positive (e.g., academic success, cooperativeness, kindness) and negative (e.g., aggressive and disruptive behaviors, poor school performance, low school engagement) social behavior patterns (Cairns et al., 1989; Zarrett et al., 2009). Children with social and behavioral problems tend to affiliate with peers who share similar problem behaviors, and this aggregation serves to maintain or accelerate adjustment problems over time (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Mahoney, Stattin, & Lord, 2004; Rorie, Gottfredson, Cross, Wilson, & Connell, 2011).

Taken together, risks for early school dropout (e.g., aggression) are embedded in ecological contexts and social relationships that ordinarily permit or support their continuance. These multiple forces coalesce across development such that change towards more favorable behavior patterns may diminish across development (Lerner, 1984). The difficulty in altering such patterns also lies in the fact that problem behaviors like aggression may represent functional strategies for the individual given his or her developmental history and current system of social supports (Kazdin, 2013).

### *1.4 Protective Aspects of Extracurricular Activities*

Risks for early school dropout are nested across individual, social, and ecological levels and often show reasonable stability from childhood to adolescence. After-school activities can be designed to reorganize such patterns in the form of increased student engagement in and motivation for school (Mahoney, Lord, & Carryl, 2005), and the formation of positive social relations with peers and adults (National Research Council and Institute of Medicine, 2002). Longitudinal studies provide the most compelling evidence that participation in after-school activities may have protective properties (Mahoney, Vandell, Simpkins, & Zarrett, 2009). Early work by Jones and Offord (1986, 1989) involved a preventive intervention for disadvantaged children in Canada. An opportunity to participate in after-school recreation activities led by skilled adults was a main feature of the prevention program. Results showed significantly lower aggression and antisocial behavior among children that participated in the after-school activities. Similarly, using data from a multi-year longitudinal study, Mahoney (Mahoney, 2000; Mahoney & Cairns, 1997) found that youth with multi-risk profiles who later became involved in extracurricular activities developed relatively low rates of early school dropout and criminal arrests as young adults. Likewise, an experimental prevention study by Allen and colleagues (Allen et al., 1997) showed that participation in after-school community service activities led to positive long-term adjustment, including reduced teen parenthood, compared with youth who did not participate in such activities. In each of these studies the after-school activities were appropriately structured, purposeful (i.e., aimed to skill-building), held regular meetings, and tended to be supervised by competent adults (c.f., Durlak & Weissberg, 2007).

For students with a low sense of belonging and connectedness to school and its values, after-school activities and programs offer them a meaningful connection to school and schooling that is voluntary (Note 1) and stable. Different from alternative preventive procedures (e.g., aggressive behavior reduction programs, remedial education) that focus on students’ deficits, after-school activities provide a bridge towards more conventional social relationships and behavior by capitalizing on individual interests, achievements, and motivation for schooling (e.g., Czikszenmihayli, 1990; Durlak, Mahoney, & Bohnert, 2010; Larson, 2000).

On this score, several studies have found that after-school activity involvement is linked to peer relationship formation and positive peer status. Unlike the classroom setting that may represent an unpleasant setting for low-income students and those experiencing social-academic deficits, such individuals may excel at beyond-the-classroom activities. This presents the opportunity to develop peer relations with classmates that may otherwise be unavailable (e.g., Eder et al., 1995; Fredricks & Simpkins, 2013). Moreover, the social relationships associated with after-school activities appear to mediate improvements in social status and popularity for children who previously experienced peer rejection during the school day (Eder & Kinney, 1995; Li, Doyle Lynch, Kalvin, Liu., & Lerner, 2011; Sandstrom & Coie, 1999). Peer relationships in the after-school setting have also been shown to moderate the association between early profiles of risk and later school failure, dropout, and crime (Mahoney, 2000).

### *1.5 The Present Study*

The present study has three main goals. First, we investigate whether extracurricular activities provide a context for the formation of social networks (i.e., homophily). Second, we expect homophily will occur through processes of socialization (i.e., youth in the same activity develop new peer relationships with one another), and selection (i.e., individuals participating in extracurricular activities “recruit” peers outside of the activity to join). These processes will occur over time and require longitudinal analysis of social networks and activity participation in tandem. In addition, social aggression is anticipated to be used as a means to marginalize or ostracize some activity members and encourage them to discontinue their participation. Finally, we expect that activity participation will act as a protective factor against early school dropout. The associated protection should be most apparent among high-risk, aggressive youth whose peer social network is also involved in extracurricular activities.

## **2. Method**

### *2.1 Participants*

Participants were involved in the Carolina Longitudinal Study (Cairns & Cairns, 1994). This is an existing dataset that includes 695 people (364 girls, 331 boys) recruited from 7 public schools in 1981-83 in the Southeastern United States. Participants were first interviewed during the 4th (Cohort I) or 7th (Cohort II) grade and followed annually to the 12th grade. They were tracked and interviewed later on at the ages of 20- and 24-years old. The rate of retention fell between 88% and 98% for all waves of data collection. Roughly one quarter of participants was African-American.

### *2.2. Measures*

#### *2.2.1 Extracurricular Activity Involvement*

Information on school extracurricular activity participation was obtained from an independent source, school yearbooks. School yearbooks are created each year in most American secondary schools and can usually be purchased by students towards the end of the school year. Yearbooks portray different categories of the school culture including: photographs of each student; a listing and photograph of students in each extracurricular activity, including special positions within the activity (e.g., president, team captain); feature articles about particular students; and portrayals of other aspects of the school culture (c.f., Mahoney & Cairns, 1997). Participation in extracurricular activities was categorized dichotomously (i.e., 1 = participation, and 0 = no participation).

#### *2.2.2 Early School Dropout*

Dropout rates were established by assessing several sources of data (i.e., school records, graduation lists, and interviews with school personnel and the participants themselves (c.f., Cairns et al., 1989; Mahoney & Cairns, 1997)). School dropout was defined as a participant leaving school prior to finishing eleventh grade. Whether a participant re-enrolled or subsequently earned an equivalency degree did not change the original dropout category.

#### *2.2.3 Peer Social Networks*

Social networks were determined using a procedure that combines information on peer affiliations from self-reports and peer reports (Cairns, Gariépy, and Kinderman, 1987; Gest & Cairns, 1989). Participants provided the names of classmates in their school that “hang around together a lot.” The size or number of social networks a student could identify was not restricted. Follow-up questions were asked, as needed, to help identify the students’ own social network and networks comprised of the opposite gender. Resulting information was aggregated across participants to develop a composite social cognitive map (SCM) that portrayed the

relationship organization of the sample, or school, as reported by all participating students. The interview procedure used to identify social networks also produced a rich array of qualitative data that provided complementary information on the developmental relations between extracurricular activity involvement and peer social networks.

#### 2.2.4 Interpersonal Conflict Resolution

As part of each annual interview participants were asked to describe recent interpersonal conflicts with peers (i.e., who was involved, what happened, and how they were resolved) and what the participants did when they were mad at another girl or boy. This qualitative data complemented the quantitative information on peer social networks and activity-related adjustment through the identification of instances of physical aggression (e.g., fight, punch/hit/kick, push) or social aggression (e.g., rumors, gossip, social ostracism) as a conflict resolution strategy.

#### 2.2.5 Socioeconomic and Demographic Information

Duncan's Socioeconomic Index-Revised provided a measure of the participants' parents' occupational classification (Stevens & Cho, 1985). The classification was created using data from the 1980 Census. One classification score was used per family. If both parents were employed, the greater occupational classification was used. Participant age, gender, and race were identified following the initial interview.

### 3. Results

#### 3.1 Social Context and Relationships in Longitudinal Perspective

Table 1 shows intraclass correlations between participation in common middle school extracurricular activities and social network membership. A significant intra-class correlation indicates that a greater number of persons in the same social network participated in the same school extracurricular activity during middle school, compared to members of a social network who did not participate in the same activity.

Intraclass correlations compare the ratio of mean square within error variance to mean square between error variance of activity involvement across the different social network clusters, and the denominator is weighted by the average social network size (e.g., Lahey, Downey, & Saal, 1983; McNemar, 1962). Network size was calculated separately for boys and girls. An F-test (ANOVA) is used to determine the statistical significance of the intraclass correlation. In many cases the correlation is statistically significant. Girls involved in band, career club, cheerleading, chorus, library assistant, and student council and boys involved in basketball, chorus, library assistant, and football tended to hang around together in the same social network.

The quantitative evidence for homophily is supported by qualitative accounts from interviews with students. Michael's account provides a powerful example:

Interviewer: "Who all hangs around together at school?"

Michael (grade 11): "There's always several different groups. Um, the sports teams...the girls' tennis team, the cheerleaders, the basketball team all seem to have their groups. A lot of people in the BETA club hang around other BETA club members. A lot of people in F.F.A. hang around together."

Interviewer: "That kind of determines it?"

Michael: "Clubs, clubs, clubs and sports determine a lot of things like that."

Table 1. Intra-class correlations between participation in common middle school extracurricular activities and concurrent social network membership for girls and boys

	Girls	Boys
Band	.23**	.13
Basketball	.08	.24**
Career Club	.49***	---
Cheerleading	.36***	---
Chorus	.37***	.25**
Library Assistant	.22**	.22**
Football	---	.25**
Student Council	.17*	.05
Volleyball	---	---
Yearbook	-.07	---

--- Dashed line signifies activity was not offered or there were no participants of a particular gender.

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

The intraclass correlations and qualitative evidence indicate that homophily exists on extracurricular activity involvement. But, the processes by which activity involvement, the social network structure, and the individual become linked are not elucidated by these findings. Do members of existing social networks socialize one another to join the same activities? Is membership in an activity the grounds for peer selection? Does knowing whether an individual is involved in school activities inform understanding of their long-term relationship or outcomes linked to the activity-affiliation relationship? Such questions require longitudinal tracking of individuals, their patterns of affiliation, and their involvement in the school activity context over time.

A longitudinal analysis of social relationships among participants in one extracurricular activity — cheerleading — provides an example of how selection and socialization processes, and context can be studied from a developmental perspective.

Figure 1 shows a grade-sequenced series of diagrams for 11 girls who attended the same middle school and high school. Each of the 11 girls participated in cheerleading at some point during secondary school (grades 7 to 12; ages 12 to 18). Each girl is represented by a numbered circle. The same girl is given the same number each year. Relationships among the girls are depicted by the presence or absence of lines connecting the circles. Solid, double-headed arrows represent reciprocal nominations for friendship (i.e., both girls nominated each other as part of the same social network). Unidirectional arrows show non-reciprocated relationships (one girl nominated the other as part of same the network, the other did not). Darkened circles represent girls active in cheerleading each year.

The large number of affiliation linkages among these girls indicates that many of them are socially connected throughout secondary school. The figures show more links than might be expected among a random group of girls. However, prior evidence and common sense tells us that involvement in cheerleading may not be a random affair (Eder, 1985; Hollingshead, 1949). In particular, the 11 girls represented were characterized by above average socioeconomic status. Therefore, a control group of 11 girls, none of whom participated in cheerleading during secondary school, were identified. This control group was chosen by matching school and classroom attended, grade, gender, race, and socioeconomic status with girls in Figure 1.

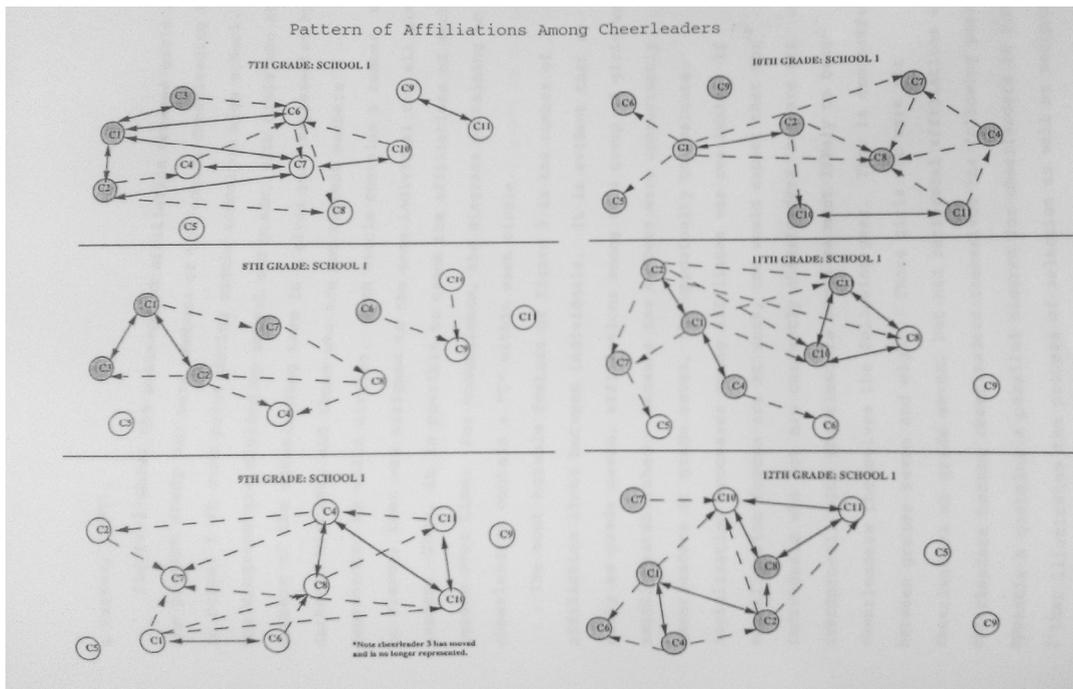


Figure 1. Diagram of social relationships among girls who were ever members of the cheerleading team between Grades 7-12. Darkened circles identify girls who are members of the cheerleading team in each year. Each arrow indicates a nomination for two individuals belonging to the same social network

Figure 2 shows the affiliation patterns among the matched control group. In Figure 2, match-1 (M1) is the matched control for cheerleader-1 (C1) in Figure 1, and so on. Comparing the number of nominated network affiliations between cheerleaders and matched controls from Grades 7-12 reveals over twice as many social links for the cheerleaders (103 vs. 66 social links). Using a matched pairs t-test this difference was significant ( $t(5) = 8.90, p < .001$ ). Comparing social links in the 10<sup>th</sup> Grade provides a stark example of this difference because all cheerleaders are actively participating (Figure 1) and none of their matched counterparts are participating (Figure 2). This comparison shows that all but one cheerleader has at least one link to another cheerleader in the group whereas six (the majority) of the match controls are isolates.

Beyond the magnitude of affiliations among girls who were involved in cheerleading, Figure 1 suggests processes by which involvement in the activity context and patterns of social affiliation may become united over time. For example, three of the eleven girls are cheerleaders in seventh grade (shown in darkened circles); eight girls are not cheerleaders that year (shown in white circles). If members of the same social network socialize one another into the same activity, then girls who are not in the cheerleading activity, but who have affiliated links with current cheerleaders, may be likely to join the same activity context. Consider girl-7 who is not a cheerleader in grade 7, but is part of a reciprocated social network with two girls who are current cheerleaders. One reciprocal link occurs with cheerleader-1, who is the captain of the cheerleading team (and continues to be captain for most of secondary school). In the eighth grade, girl-7 becomes an active member of the squad. A similar process is observed for cheerleader-6 from seventh to eighth grade. In other words, the social network appears to function like a catalyst for membership into the activity context. Membership in the activity context allows for the “recruitment” of other students into the activity.

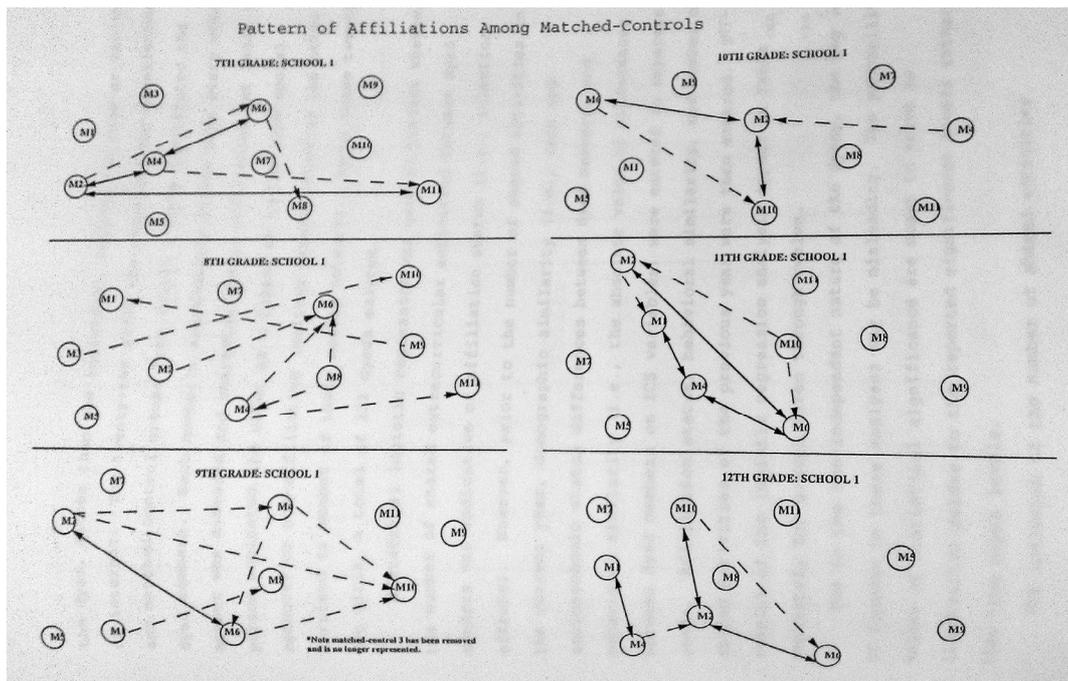


Figure 2. Diagram of social relationships among female matched-counterparts who did not participate in cheerleading between Grades 7-12. The placement of each circle corresponds to a matched counterpart cheerleader in Figure 1. Each arrow indicates a nomination for two individuals belonging to the same social network

The example highlights a method for assessing the link between individual social relationships as a gateway to membership in new contexts and relationships. It also presents an alternative way to conceive of the peer group entry process. To become a new member of an existing group, it may not be necessary to “apply” for membership, or to be “recruited” or accepted by all current group members. Establishing close relations with one or a few significant members of the existing group may be sufficient. Once a place in the activity context is attained, the opportunity to form relations with other activity members becomes available. This process may

operate effectively for conventional groups, such as cheerleading, as well as the formation of deviant coalitions and inner-city gangs.

The principles organizing initial acceptance into a social network and those which maintain membership may differ. For instance, school policy prevented students from participating in cheerleading in the ninth grade (the beginning of high school; age 15). In tenth grade, all eleven girls are active in cheerleading (shown in Figure 1 as all darkened circles). However, some girls left the cheerleading activity context in subsequent years. Cheerleader-5 and cheerleader-9 did not return to the cheerleading team after the tenth grade. Examining the history of their affiliation patterns with other members of the cheerleading team shows a loose pattern of social relations. These two girls were competent enough to make the squad in tenth grade, yet they never established close social ties with any of the existing members. Accordingly, ability alone did not guarantee permanent acceptance into the social activity context. Other gate-keeping mechanisms are involved in regulating who is and who is not an enduring member of the individual-social network-activity context relation. The mechanisms organizing expulsion processes are of equal interest to those which guide acceptance and continuity in social relationships.

### 3.2 Social Aggression as a Gatekeeping Mechanism

Becoming engaged in school extracurricular activities is a selective process (Mahoney et al., 2009). Many school extracurricular activities have competence or skill requirements for involvement. Moreover, persons who join an extracurricular activity usually share an interest in the specific activity or in school engagement in general. Social processes may also direct patterns of selection into school extracurricular activities (described above). Accordingly, current members of an activity may be influential in determining who does and who does not become a new member, and who retains membership over time. Membership in the network and social context may be regulated both by keeping current, desired members involved while excluding or ostracizing non-desired candidates (Evans & Eder, 1993; Faris & Felmlee, 2011; Zimmer-Gembeck, Pronk, Goodwin, Mastro, & Crick, 2013). Social aggression — which involves manipulating social network dynamics to indirectly attack or disparage another — appears to affect the process of social network acceptance and retention.

By way of example, consider the case of Michelle, an attractive, eleventh grade girl, from a middle-class family, involved in cheerleading since middle school. During eleventh grade, Michelle chose to compete in the “Ms. High School” pageant, an annual contest for girls based on academic skill, poise, talent, and beauty. The contest carries a high degree of local prestige and is paramount in the school social status system. Because contestants are usually high school seniors, Michelle’s entrance as an eleventh grader was unusual.

When the winning envelope was opened, Michelle was announced as “Ms. High School.” One might imagine the joy and ecstasy of such a selection. In the course of her annual interview later that same year Michelle explained her experience after receiving her crown.

*“...we have an interview before the pageant so the judges can sort of get to know you. It’s a lot easier to, after you’ve talked to a person one time, to judge ‘em than judging total strangers. Okay — of course I didn’t know any of these judges—but after the pageant some of the girls that were in there, like the ones that were really supportive, they turned bad. They said I rigged the pageant. And I can’t really see that, even though, because I didn’t know the judges, and you have to have money to rig these, and I’m not very rich. And they were saying — just critical remarks. That can be expected, but I — I just ignored it. I just — I realize that anyone, whether you get the lead in a play, or the lead in church choir, somebody’s not gonna like it. Somebody’s gonna be--a bad feeling there. Anyone who wears that hat’s gonna feel that way. So, I just ignore it and it’ll go away.”*

The social network can act as a unit to regulate individual behavior within the social context and this type social regulation can take the form of attack as well as affiliation (Cairns & Cairns, 1994; Shi & Xie, 2012). In the above example, violating implicit norms about the Ms. High School activity resulted in rumor spreading, ostracism, and the dissolution of established social network ties. Compared with physical aggression, social aggression can be an effective means of conflict resolution because there may be little or no cost to the perpetrator(s) and, in some cases, the social aggressor’s identity can remain anonymous.

The role of homophily in social network composition deserves further comment. Homophily is generally viewed as promoting the formation of relationships or as a necessary component in the stability of existing relationships. Indeed, it has been suggested that a lack of group solidarity predicts instability of the social group (Cohen, 1977). The findings presented in this study are generally supportive of this proposal. However, it is conceivable that under some conditions too much similarity among friends could be destructive to the relationship process. When individuals share the same goal of obtaining one of a limited number of prestigious positions, the result can be conflict rather than camaraderie. Participation in extracurricular activities can present high levels of competition

among persons who want to be part of an elite context and hope to obtain a common position of activity leadership. Described by one twelfth grade girl, active in several school extracurricular activities, this competitive process can undermine the relationship process:

*"I mean there's always been competition between us. Like when we ran for class president. Everything--everything we go for is together. Just like homecoming, we were against each other for homecoming. And you know, cheerleading, you have to be friends and there's gonna be tension between us, and I don't want it that way. I've never wanted it that way. But, there's something she--you know, I just can't understand it--she's got against me. I mean, I wish--I wish.... I think after we graduate things will be set behind, because all this deal with friends and peer pressure and stuff will be gone and I think we'll be able to be friends."*

### 3.3 Individual Characteristics, Social Networks, and Contexts: Long-Term Perspectives

The above examples support the conclusion that aspects of the individual, his or her network, and social context are interdependent. The developmental processes connecting this social-ecological fabric can be artificially separated, but not without unraveling the tapestry of development. However, the practical implications of the holistic model in terms of long-term, positive adjustment have been limited. Longitudinal data, emphasizing multi-level assessment and process, is necessary to address such questions.

Mahoney & Cairns (1997) found that school extracurricular activity participation during secondary school was linked to a substantial reduction in early school dropout. The reduction was most marked for students with a pattern of risk for school failure. Kinney (1993) showed that middle school students described as "nerds" felt a greater sense of connectedness to the school through their involvement in high school extracurricular activities. New relationships formed around a common interest in the activity. The relationships, in turn, appeared to foster an increased sense of belonging to the school setting. Taken together, the findings suggest that studying individual competence, school engagement, and social network membership simultaneously may help explain why some high risk youth do not experience long-term adjustment problems leading to school dropout.

Accordingly, the relation between extracurricular activity participation during early secondary school and subsequent rates of school dropout was assessed. Additionally, whether or not one's social network was involved in school extracurricular activities was considered. Eighty individuals who were ( $n = 40$ ) and who were not ( $n = 40$ ) designated as very aggressive by school staff when the study began were targeted for this analysis (see Cairns & Cairns, 1994 and Cairns, Cairns, & Neckerman, 1989a for details on the identification of aggressive youth). Thus, three levels of analysis were considered; namely, individual (aggressive risk status), social (characteristics of the individual's social network), and contextual (extracurricular activity involvement).

For youth who were nominated as highly aggressive at the outset of the investigation, participation in school extracurricular activities was associated with decreased school dropout. However, reduced school dropout was true only when the majority of the participant's social network also participated in extracurricular activities. The rate of early school dropout was 85% when neither the aggressive youth nor their social network participated. When the aggressive youth were not participants, but their social network were participants, the rate of school dropout was 61%. When the aggressive youth participated, but their social network did not participate, the dropout rate was 33%. Finally, when both the aggressive youth and their social network were participants the dropout rate was 19%. By contrast, rates of early school dropout for non-aggressive youth did not depend on whether their social network participated in extracurricular activities. The difference was statistically significant ( $\chi^2(80) = 21.95, p < .01$ ).

The upshot is that for extracurricular activity participation to show an associated protective influence on dropout for highly aggressive youth, peer support from a social network also engaged in extracurricular activities appears necessary. Low risk youth may not require the support of the social network. Presumably competent youth may already have sufficient social ties to conventional behavior — the social network support is redundant when early school dropout is the outcome. Such findings cannot be uncovered unless properties of the individual, social network, and social environment are studied simultaneously and from a holistic, developmental perspective.

## 4. Limitations

Beyond the usual caveat that correlational studies – including longitudinal research with multiple controls for selection bias – cannot be used to infer causation, there are two related methodological weaknesses in this study that should be recognized. First, extracurricular activity participation was limited to a dichotomous measure. There are several other aspects of participation such as intensity, breadth, and duration of involvement that have become more commonplace in this research field over the past two decades (Bohnert, Fredricks, Randall, 2010).

The additional measures should be included in research that follows from this study. Second, the Carolina Longitudinal Study was completed more than a decade ago and many of the participants were in high school over two decades ago. The growth in technology including social media, texting, and competitive online gaming has affected teenagers' communication during the ensuing years. This has implications both for how social networks form and members communicate with one another (e.g., Reich, Subrahmanyam, & Espinoza, 2012) and for how aggression is carried out among peers with different social status (e.g., Badaly, Kelly, Schwartz, & Dabney-Lieras, 2013). These implications call for an effort to replicate of the current findings with more current and expanded measures of peer group socialization processes and related outcomes.

### 5. Concluding Comments

This study demonstrated how social network assessment can be effectively incorporated into a holistic perspective to extracurricular activity participation and youth development. The findings underscore the importance of multi-level assessment in longitudinal research and the relevance of including social network information to clarify social processes and long-term adjustment patterns. The implications of this work are theoretical and practical.

The novelty of the present study lies in the focus on interactive processes occurring in development that transcend the individual. These interactions include social interchanges beyond the level of the dyad, as well as those which consider the broader social context. Focusing simultaneously on the individual, social network, and the social context tells us something more and something different than any single aspect does. Importantly, the holistic perspective does not diminish the contributions of any single level - individual, social, contextual - it elucidates the contributions of each.

Including assessment of the social network can help to clarify developmental processes and inform prevention research. For example, in order to effectively address the question of whether extracurricular activities participation was associated with reduced school dropout, information about how the individual, the social network, and the social context are inter-related was required. Although an associated reduction in dropout is apparent by focusing on the individual's engagement alone (McNeil, 1995), understanding the composition and features of his/her social network clarify the relation. More broadly the findings highlight that the developing individual retains the capacity for behavioral reorganization beyond childhood. Changes in individual attributes, social relations, and social sub-systems external to the individual play a role in this reorganization during adolescence.

To summarize, assessing the social network can provide valuable information concerning social processes and long-term adjustment patterns in development. An interaction between levels of organization — including social interchanges — is normative, rather than exceptional. The challenge to developmental scientists is combining these levels in an effective and coherent manner. The holistic approach to development promises clarity and understanding of developmental process, rather than confusion. Confusion gives way to clarification when the relevant components are viewed in context, pursued carefully over time, and guided from theory at the outset.

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### Notes

Note 1. Voluntary choice in school extracurricular activities refers to a distinction between North American school requirements for secondary school graduation (i.e., mandatory school classes) vs. school sponsored activities that are not necessary for successful completion of formal schooling. This does not, however, deny that parents, advisors, and peers play an important role in the activity participation selection process (e.g., Chang & Mahoney, in press; Mahoney et al., 2009).

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