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**COMMUNITY RISKS AND RESOURCES IN RURAL AMERICA:
WHAT MATTERS?**

A Thesis in
Human Development and Family Studies
by
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ABSTRACT

The present study takes a multi-method approach to examine the relationships among community risks and resources, and youth problem behaviors in a rural and small town context. To do so, a guiding framework is developed utilizing conceptual models from theories of social capital, social disorganization, and prevention science. The sample includes all 28 sites of the PROSPER project in Iowa and Pennsylvania.

Community risk and resource measures were derived from several different archival sources, Geographic Information Systems (GIS) technologies, and interviews of key community members. Five domains of community risk (economic risk, crime, substance risk, district academic risk, and school problems) and four domains of community resources (collective efficacy, school proactive, the density of youth serving organizations, availability of structured activities) were assessed. In addition, GIS was utilized to assess the additive value of the individual youth's proximal experience of various community risks and resources in predicting their individual problem behaviors.

Outcome measures were derived from survey measures given to students in the spring of their eighth grade year. Community-level outcomes include rates of adolescent alcohol use, rates of cigarette use, rates of aggressive behavior, and rates of property destruction. Individual-level outcomes focus on a combined problem behavior index, the sum of the individual's reported engagement in the previous listed outcomes. The present study included 5,003 eighth grade students.

The findings from this study suggest that community risks tend to occur together, whereas community resources are more independent of one another, and that communities with more risks do not necessarily have a low number of resources. Thus, community risks and resources may act independently in predicting youth outcomes. Second, the findings from this study suggest that numerous aspects of the community context, with special emphasis on the school context, predict community rates of adolescent problem behaviors. Third, individual youth's proximal experience of the community context adds unique prediction to their reported engagement in problem behaviors. The paper concludes with a discussion of these and other findings' implications for intervention.

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Chapter 1

INTRODUCTION

Citizens, youth advocates and policy-makers have called attention to the role that “community” plays in promoting positive outcomes for youth (Clinton, 1996; Gore, 2003; McLaughlin, 2000; Whitford, 2005). For example, communities can set policies, build facilities, support human services, and engender a positive spirit or a sense of hopelessness that may influence community life as well as outcomes such as substance use and crime. From an empirical standpoint, one central question is how community-level measures of risks and resources relate to community-level and individual-youth rates of early adolescent substance use and other problem behaviors.

Much of the prior research that focuses on explaining adolescent substance use and other problem behaviors has been conducted at the individual-level: examining how individual risk and protective factors influence individual outcomes. Recently more work has related community-level factors to community-level outcomes, but this work has focused mostly on urban settings and relies heavily on archival measures. This project expands prior work by examining rural and small towns, using adolescent reports of their own behaviors, and using an innovative way to identify how proximal community factors relate to individual outcomes.

This research project explores the relationships among community-level risks and resources, and youth problem behaviors with three specific aims. The first specific aim is to understand the relationship between various community level risks and resources in a rural and small town context. The second aim is to understand the relationship between

these community characteristics and youth problem behaviors. The third aim is to understand how individual youth's proximal experience of various community-level risks and resources relate to their individual behaviors. To do so, a guiding framework is developed utilizing conceptual models from theories of social capital, social disorganization, and prevention science.

The current study investigates the link between community-level characteristics and early adolescent problem behaviors within school districts that are composed of rural areas and small towns. Investigation within this context is warranted for several reasons. First, this context has largely been ignored. Second, research investigating rural communities has yielded somewhat conflicting results; more work needs to be done to clarify the influence of community context. For example, some research shows that poverty does not relate to crime in rural communities (e.g. Osgood & Chambers, 2000), whereas poverty as one index of disadvantage relates positively to crime in other research (e.g. Lee & Ousey, 2001). Third, research in rural communities typically use the county as their level of measurement (i.e. Lee & Ousey, 2001; Osgood & Chambers, 2000), whereas other units of measure such as school districts may be more meaningful when investigating adolescent outcomes (Ennett, Flewelling, Lindrooth, & Norton, 1997; Resnick, Ireland, & Borowsky, 2004). Other research (i.e. Farrell, Anchors, Danish, & Howard, 1992) in this area has focused on one community at a time, which limits generalizability.

In addition, examining the rural context is warranted because rates of early experimentation with gateway drugs such as alcohol and tobacco are just as high, and sometimes higher in rural as compared to urban areas (Brown, Schulenberg, Bachman,

O'Malley, & Johnston, 2001; Edwards, 1995; Eitle & Eitle, 2004; Farrell, Anchors et al., 1992; Skager & Fisher, 1989). However, new research demonstrates that the trajectories of use may be different between urban vs. rural students (Farrell, Sullivan, Esposito, Meyer, & Valois, 2005). Lastly, examination of community contextual factors is frequently absent in studies of adolescent outcomes within a rural context (e.g. Chopak, Vicary, & Crockett, 1998; Farrell, Anchors et al., 1992; Farrell et al., 2005; Griffin, Epstein, Botvin, & Spoth, 2001), and understanding community correlates of adolescent problem behaviors may help explain why certain behaviors seem to persist in certain geographic locations over long periods of time (Shaw & McKay, 1999). There is more to be known about how the rural and small town community context relates to adolescent problem behaviors.

It is important to consider early adolescent substance use and delinquent behaviors because of the timing of these behaviors within the life course and the cumulative consequences they are likely to have. Early adolescent substance use increases the risk for addiction (Chassin, Pitts, & Prost, 2002; McGue & Iacono, 2005; Pitkanen, Lyyra, & Pulkkinen, 2005). In addition, early substance use can lead to significant social, emotional, educational and physiological problems (for review, see National Institute on Alcohol Abuse and Alcoholism, 2003; Edwards, 1995). There is also some continuity from early adolescence into young adulthood of aggressive and delinquent behaviors, and these behaviors are likely to have more severe consequences in adulthood (Abbey & McAuslan, 2004; Caspi, Elder, & Bem, 1987; McGue & Iacono, 2005). The present study takes a multi-method approach to measure the community context that is likely to relate to these behaviors. It includes assessments from key

leaders, community experts, and also gathers information from archival sources; these techniques are imperative to develop a better understanding of the role of community context (Leventhal & Brooks-Gunn, 2003; O'Campo, 2003).

This introduction includes three main sections. The first section gives descriptive information about the communities involved in the present study. The second section highlights the major theoretical rationale and empirical findings from which this project draws. Specific attention will be given to the literature that focuses on the relationship between community characteristics and both youth and community behavioral outcomes. The third section outlines the major research questions and hypotheses.

Conceptualization of Community

Understanding the community context within which an individual lives is crucial to understanding an individual's development (Bronfenbrenner & Morris, 1997). This introduction will first conceptualize what is meant by community. Next, three areas of research that describe the community context are reviewed: social disorganization, social capital, and prevention science. Then, empirical research that is relevant to the present study is reviewed.

Many different definitions of "community" are employed by researchers that do community-level and neighborhood-level research. At times *community* is used interchangeably with *neighborhood* (e.g. Leventhal & Brooks-Gunn, 2000). At other times the definition of community or neighborhood is left to the interpretation of the research participants (e.g. Cook, Herman, Phillips, & Settersten, 2002; Ennett, Flewelling, Lindrooth & Norton, 1997), or it is defined by researchers in analyses as census blocks or tracts (i.e. Cook et al., 2002; Peterson, Krivo, & Harris, 2000; Duncan,

Duncan, & Strycker, 2002). Community or neighborhood sometimes refers to school districts (i.e. Dent & Biglan, 2004) or even a specific school catchment area (i.e. Ennett et al., 1997). Zip codes have also been used as the definition of community (i.e. Gruenewald, Johnson, & Treno, 2002), and still at other times researchers coordinate with experts to incorporate landmarks and/or social and economic indicators in the operational definition of a community or neighborhood (i.e. Sampson, Raudenbush, & Earls, 1997; Chuang, Cubbin, Ahn, & Winkleby, 2005). In the present study, “community” is conceptualized as the physical structures, behaviors, norms, culture and attitudes, and demographic characteristics of the people and places that are located within unified school district boundaries. The definition of community was explicitly stated to research participants and employed by researchers at all stages of the project.

Community-Oriented Models

Social disorganization. Models of social disorganization view communities as dynamic places built upon social networks (Sampson, 1993); it focuses on how length of residence, relational ties between community residents, and relationships between individuals and organizations serve to regulate behavior, which is frequently called social control (Bursik & Grasmick, 1993; Sampson, 1993; Sampson, Raudenbush, & Earls, 1997). The most influential recent model of social disorganization centers on collective efficacy (Sampson et al., 1997).

Collective efficacy includes two concepts: community cohesion and the expectation of community residents to act when there is a problem (Sampson, 2001). In a seminal paper, Sampson and colleagues (1997) have shown that high levels of collective efficacy relate to lower rates of perceived and archival crime in urban areas (Lowenkamp,

Cullen, & Pratt, 2003; Sampson et al., 1997). It is theorized that high levels of collective efficacy facilitate social control which then affects community rates of crime. The present project will examine how collective efficacy is related to community-level and individual-level adolescent outcomes.

Social capital. The second model that has implications for describing how communities may have an impact on youth outcomes is social capital. Social capital, most generally, is described as a “resource for action” (Coleman, 1988); connections between individuals are viewed as resources that explain why certain behaviors do or do not occur, and the emphasis is on the relationship, not the resulting behavior. Coleman (1988) highlights obligations and expectations of individuals as well as social norms as aspects of social capital, yet he also places emphasis on the structure of relationships. The structure of the relationships among individuals would be likely to affect the way information (i.e. obligations, expectations, social norms, etc.) is disseminated and communicated between individuals.

There are many ways to measure social capital; social capital has been operationalized as mutual trust between community members, interpersonal ties to community organizations, and dense social networks (e.g. Boisjoly, Duncan, & Hofferth, 1995; Furstenberg & Hughes, 1995; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). Higher ratings of social capital have predicted a diversity of outcomes such as lower mortality rates and higher adolescent educational attainment (Furstenberg & Hughes, 1995; Kawachi et al., 1997). This project assesses aspects of social capital that are likely to be the most salient for understanding early adolescent problem behaviors: perceived social norms and substance availability. Social norms and substance

availability are characteristics of communities that are likely to encourage (or discourage) behaviors of the individuals that are part of that community.

Social capital and social disorganization are similar constructs, as they both intend to predict the occurrence of behavior. In fact, some researchers group them together (e.g. Kawachi, Kim, Coutts, & Subramanian, 2004). However, there are two important distinctions. First, they have been applied to different issues; social disorganization has mostly been applied to severe outcomes such as crime (Ennett et al., 1997), while social capital has been applied to a normative and broad set of behaviors such as young adulthood educational attainment and integration into the labor force (Furstenberg & Hughes, 1995). Secondly, some theorists suggest that social capital is a property of specific social networks, whereas collective efficacy and social control are general feelings and expectations of a non-specific network at a broader community-level (Sampson, 2001). Another possible distinction is that social capital seems to focus more on the information and relationship, whereas collective efficacy seems to focus more on the action or behaviors of individuals and groups. Because of their uniqueness, this project will pull concepts from both fields into a risk and protection framework in order to theorize how these aspects of the community relate to adolescent substance use and delinquent behaviors.

Prevention science. Prevention science utilizes a public health approach to assessing the positive (risk) and negative (protective) correlates to undesired physical and behavioral outcomes (Hawkins, Catalano, & Miller, 1992). A “risk factor” is a characteristic that positively relates to poor outcomes, whereas a “protective factor” is a characteristic that changes the effect of the risk factor on the outcome (Rutter, 1990).

This empirical strategy frequently includes measuring different ecological levels of risk and protection: community, school, family, peer, and individual domains (Hawkins et al., 1992), and it can incorporate ideas from social disorganization and social capital to examine how theoretically-based community characteristics may impact youth outcomes.

Research on risk and protective factors for adolescent problem behaviors has been conducted at several separate levels of analysis, the individual, the peer group, the family, and the community. The present research project focuses on two of these levels: the individual and the community. This project also expands on previous work by assessing already established community-level risk and protective factors, along with processes identified within social disorganization and social capital. For example, collective efficacy may be a protective factor because of the strong and consistent negative relationships it has with crime and adolescent delinquency. However, because main effects are hypothesized, the term *resource* will be used along with risk instead of the terms *protection* and *protective factor*. Community resources, then, describe more broadly what communities have *to offer* youth and families, which may improve adolescent outcomes. It is hypothesized that these community resources will relate negatively whereas community risks relate will relate positively, to adolescent problem behaviors.

Community Risks

There are several categories of community risks included within this project: demographic characteristics, crime, substance use norms, and substance availability. This section will review the evidence surrounding these characteristics.

Community demographics. The primary community demographic characteristic included within this study is poverty. There are at least two ways poverty is typically measured: single or multiple archival measures are gathered and used independently (e.g. percent of families living below the poverty level, percent of student that receive free and reduced lunches), or multiple archival measures are combined in a master scale. In general, the evidence demonstrates that poverty relates to poor adolescent outcomes, but there is variability depending on the specific outcome under study (Leventhal & Brooks-Gunn, 2000).

The link between poverty and early initiation of adolescent substance use has not been well established. Previous research shows that low community economic levels do not seem to relate to community-levels of early adolescent alcohol and tobacco use (Eitle & Eitle, 2004; Ennett et al., 1997). Indeed, individual-level analyses corroborate this finding (Allison et al., 1999; Reardon, Brennan, & Buka, 2002).

On the other hand, the link between poverty and severe delinquency and/or crime has been established (Kawachi, Kennedy, & Wilkinson, 1999; Sampson & Groves, 1989; Sampson et al., 1997; Simcha-Fagan & Schwartz, 1986). General community disadvantage has been related to higher rates of crime in rural counties (Lee & Ousey, 2001); however, disadvantage has not been specifically related to adolescent crime rates. Further, in rural counties poverty was not a significant predictor of county juvenile crime rates (Osgood & Chambers, 2000).

Some research using measures of poverty and disadvantage in urban areas has shown relations to community rates of perceived adolescent delinquency and drug and alcohol-related arrests (Duncan et al., 2002; Sampson, 1997; Simcha-Fagan & Schwartz,

1986). In addition, a combined census measure of community disadvantage has been strongly related to the between-level variance of youth report of hanging out with deviant peers (Brody et al., 2001).

While composite measures of economic deprivation may have relationships to rates of violent crime, the relation of poverty and violence may be moderated by other community characteristics. For example, in census tracts with high rates of poverty, the number of bars was related to higher rates of violent crimes, while the presence of recreation centers was related to lower rates of violent crime (Peterson et al, 2000).

Taken together, this evidence supports the hypothesis that rates of poverty are related to levels of general adolescent delinquency and conduct problems, whereas poverty rates may not relate specifically to early adolescent substance use. It is possible that the consistent finding that poverty relates positively to crime is because severe contexts better predict to non-normative outcomes, whereas adolescent substance use may be a mostly acceptable, normative behavior in many communities (Ennett et al., 1997). Indeed, rates of alcohol use seem to be higher than rates of other risky behaviors (Johnston, Terry-McElrath, O'Malley, & Wakefield, 2006; Centers for Disease Control and Prevention [CDC], 2006). Theories of social capital and disorganization would suggest the need to look past measures of disadvantage to other community characteristics to understand its impact on early experimentation with cigarettes and adolescent substance use.

Crime rates. Crime is another community risk for both community-level and individual-level rates of adolescent problem behavior. Archival crime rates are usually considered as dependent variables in community-level research, but they are also likely to

be important predictors of adolescent behavioral outcomes. It is possible that community crime relates to adolescent problem behaviors through various pathways. It may be direct modeling of violent and illegal behavior, or it may be indirect through communicating norms for delinquent behaviors, which is likely to increase rates of adolescent delinquency (Simcha-Fagan & Schwartz, 1986). Adolescent substance use may also be a coping mechanism (Wagner, Myers, & McIninch, 1999; Windle & Davies, 1999), which adolescents may use to deal with the stress of neighborhood crime.

When archival crime rates are examined as independent variables, they are associated with adolescent externalizing behaviors. At the community-level, crime rates are a stronger predictor of community-rates of youth externalizing behaviors (Coulton, Korbin, Su, & Chow, 1995), especially when it is coupled with poverty (Plybon & Kliewer, 2001). Rates of externalizing behaviors in African-American early adolescents were the highest in moderate crime and high poverty inner-city neighborhoods as compared to high crime, moderate poverty neighborhoods and low poverty, low crime neighborhoods. Community rates of crime also relate to male individual violent behaviors (Farrington, 1998), and individual perceptions of crime also positively relate to rates of individual delinquency (Lynam et al., 2000).

Community crime rates also relate to adolescent substance use. Community aggregates of youth perceptions of neighborhood crime relate positively to community rates of adolescent lifetime and 30-day substance use (Hawkins, Van Horn, & Arthur, 2004). Perceptions of neighborhood crime also relate to levels of substance use at the individual-level (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Lynam et al., 2000).

The present study assesses community rates of crime as a potential risk factor for both early adolescent substance use and delinquent behaviors in mostly rural and small towns. This study expands upon previous research by directly assessing archival crime rates in rural communities which have been understudied and typically have relatively low rates of crime.

Substance availability. A third potential community-level risk of adolescent problem behaviors is the availability of substances. It is a contextual factor that could influence norms for those behaviors, as well as being a simple matter of access (Wagenaar & Perry, 1994). There are numerous ways that availability to substances can be measured: perceived availability from youth report (Arthur et al., 2002), perceived availability from key leader or adult report (Beebe, Harrison, Sharma, & Hedger, 2001), by measuring the density of alcohol and tobacco outlets within a given area (Scribner, Mackinnon, & Dwyer, 1995), measuring the laws and restrictions on the sale or use of these substances (Bauer, Hyland, Li, Steger, & Cummings, 2005; Moore, Roberts, & Tudor-Smith, 2001), measuring the frequency of retail sales to minors through checks with confederates (Dent & Biglan, 2004; Dent, Grube, & Biglan, 2005; Wagenaar, Toomey, & Erickson, 2005), and even by objective observer reports of drug selling in a neighborhood (Sampson & Raudenbush, 1999). Because of the focus on alcohol and cigarette use, and because early adolescents gain access to alcohol and tobacco most often through friends and family (DiFranza & Coleman, 2001; Emery, Gilpin, White, & Pierce, 1999; Wagenaar et al., 1993), this study uses two of these measures of availability: perceived availability from key leaders and the density of alcohol and tobacco outlets.

Both youth and adult perceptions of the availability of substances positively relates to alcohol and tobacco use both in both individual and community-level analyses, and regardless of age (Arthur et al., 2002; Ennett et al., 1997; Glaser, Van Horn, Arthur, Hawkins, & Catalano, 2005; Hawkins et al., 2004; Kuntsche & Kuendig, 2005). Some evidence also shows that adolescent perceptions of substance availability also relate to adolescent delinquent behaviors, (Herrenkohl et al., 2001).

Research that measures alcohol outlet density as an index of availability demonstrates similar relationships. On a community or census-tract level, the link between the density of alcohol outlets and negative outcomes has been well established in urban areas, although the specific relation to early adolescent use has not been documented. The presence of bars has both main and interaction effects when predicting rates of violent crime and the total number of alcohol outlets relates positively to violent crime above and beyond economic disadvantage (Scribner, Cohen, Kaplan, & Allen, 1999; Scribner et al., 1995; Speer, Gorman, Labouvie, & Ontkush, 1998; Zhu, Gorman, & Horel, 2004). However, the additive effect of alcohol outlet density did not demonstrate additive effects in an overall “less risky” (i.e. higher median income, less percentage of minority residents, lower unemployment rates, less single parent households, etc.) community sample (Gorman, Speer, Labouvie, & Subaiya, 1998).

The density of alcohol outlets has similar relationships to other community-level outcomes. Greater outlet density has independent relationships to sales of alcoholic beverages (Gruenewald, Ponicki, & Holder, 1993), rates of motor vehicle crashes (Scribner, Mackinnon, & Dwyer, 1994), and specifically the density of bars that serve only beer are related to the number of arrests of public drunkenness (Watts & Rabow,

1983). The density of bars and alcohol outlets has also been related to substantiated cases of child maltreatment, neglect, and abuse even after controlling for social disorganization and population density (Freisthler, 2004; Freisthler, Midanik, & Gruenewald, 2004).

Some analyses have related alcohol outlet density to adolescent behavioral outcomes. In one study, high density of outlets at the city level relate to adolescent self-report of drunk driving and riding with a drunk driver in urban areas (Treno, Grube, & Martin, 2003), while in another, the density of alcohol outlets of the census tract did not independently predict perceived adolescent alcohol and drug problems, (Duncan et al., 2002).

The density of tobacco outlets has not been investigated as frequently as the density of alcohol outlets, however research shows that the density of tobacco outlets calculated as the number of outlets per 50 km of roadway positively relates to the prevalence of smoking in the whole population (Reid, Peterson, Lowe, & Hughey, 2005). It is possible that this relationship will hold for early adolescent cigarette use as well.

The present study takes a multi-dimensional approach to measuring availability. Perceived availability is reported by key community leaders and it also is assessed as the density of alcohol and tobacco outlets within the community. It is hypothesized that the availability of substances will relate positively to adolescent alcohol and cigarette use, and also delinquent behaviors.

Substance use norms. This study also assesses substance use norms as an indicator of risk. Previous research has shown that youth perceptions of norms predict adolescent substance use (Arthur et al., 2002; Botvin, Griffin, Diaz, & Ifill-Williams, 2001; Ellickson, Bell, & Harrison, 1993; Ennett et al., 1997; Hansen & Graham, 1991;

Hawkins et al., 2004; Kumar, O'Malley, Johnston, Schulenberg, & Bachman, 2002).

When youth perceive it is acceptable to use substances and/or that their friends are using substances, they are more likely to use.

This study assesses community norms of substance use by assessing perceptions of key leaders regarding community norms. It is hypothesized that communities that are more accepting of adolescent substance use will also have higher rates of use. It is also possible that greater availability of substances will relate to more accepting norms, which in turn, will then predict higher rates of adolescent use. It is unclear how substance use norms will relate to adolescent delinquent behaviors, but it is likely that the relationship will be positive.

Summary. Community rates of poverty and crime, as well as the norms and availability of substance use have been shown to relate positively to adolescent substance use and delinquency in various contexts at the community level. It is expected that crime rates, norms, and availability will relate positively to community rates of adolescent substance use and delinquency in a rural and small town context. It is also expected that poverty will positively relate to community rates of adolescent delinquency.

The School Context: A Possible Risk & Resource

The school context also impacts youth rates of substance use and delinquent behaviors (Glaser et al., 2005; Haynes & Comer, 1996). There are several aspects of the school context that may serve as either risks or resources for student behavioral outcomes. The most frequently investigated aspects of the school environment are individual-level attitudes: youths' experience of opportunities and rewards for prosocial

behaviors, and youths' commitment to school (Bond, Toumbourou, Thomas, Catalano, & Patton, 2005; Ennett et al., 1997; Glaser et al., 2005; Resnick et al., 2004).

The school organizational environment has also been the target of academic and behavioral interventions (e.g. Felner et al., 1993; Haynes & Comer, 1996; McDonald et al., 1997). These interventions aim to change multiple components of the school organizational structure, such as the inclusiveness of leadership, the role of the homeroom teacher, and the amount of parent involvement. Changing these facets of the school environment has generally had positive effects on academic and behavioral student outcomes (Felner et al., 1993; Haynes & Comer, 1996; McDonald et al., 1997). Similarly, theoretical work identifies school leadership practices as an "essential support" of student academic achievement (i.e. Sebring et al., 1996), and some empirical work demonstrates that leadership has an indirect effect on student academic achievement (Mulford & Silins, 2003). Improvements in school leadership may also relate to fewer adolescent behavior problems at school (Gottfredson, 1986).

This project extends these findings to measure the school organizational context as a potential community-level risk and a potential community-level resource. The specific constructs included in this project are the key leaders' perceptions of the proactive nature of the school leadership and how effectively the school copes with problems. The degree to which the school involves families may affect youth behaviors by reinforcing similar positive messages and expectations for prosocial behaviors (National Research Council and Institute of Medicine, 2002). Likewise, it is likely that school districts with many problems may be less able to communicate positive behavioral

expectations to their student body and may have higher rates of adolescent behavior problems.

Community Resources

In addition to the role of risks, community factors may also protect against negative outcomes by providing resources to its youth and families (Hawkins et al., 1992). In addition to the proactive nature of the school leadership, two main concepts investigated within this study are collective efficacy and structured youth activity opportunities.

Collective efficacy. As mentioned previously, collective efficacy is composed of two constructs: community cohesion and informal social control (i.e. the expectation of community residents to intervene on behalf of youth). This construct is frequently measured through community citizen and adolescent reports.

The majority of the research that relates these constructs to self-reported adolescent substance use and delinquency focuses on youth ratings of community attachment. Adolescent report of attachment to their communities relates to ratings of substance use; low community-level scores of predict to high community rates of adolescent substance use (Arthur et al., 2002; Hawkins et al., 2004).

Other research has shown that citizen reports of neighborhood cohesion relate to lower *adult perceptions* of adolescent neighborhood drug and alcohol problems (Duncan et al., 2002; Ennett et al., 1997). However, other research indicates that citizen reports of attachment predict higher community-level rates of self-reported early adolescent alcohol and possibly cigarette use (Ennett et al., 1997). When investigating both constructs, citizen reports of social cohesion had stronger associations to perceived neighborhood

problems and burglary rates than did reports of informal social control in a rural county-level sample (Cancino, 2005). However, in urban settings, informal social control mediated the effect of neighborhood disadvantage on a general measure of problem behaviors, which included substance use and delinquent behaviors (Elliott et al., 1996).

The present study includes a measure of community attachment and community initiative, as measured by key community leaders. Community attachment describes the overall emotional investment community members have to their communities as well as the degree of community cohesion. Community initiative describes the willingness of community residents to get involved and to make a difference in their communities. It is hypothesized that the combination of these constructs will relate to lower rates of early adolescent substance use and delinquent behaviors.

Youth activity resources. Another community resource for middle school students may be activities that provide students with healthy alternatives to participation in problem behaviors. Adolescent activity involvement is usually investigated at the level of the individual.

Prior research on individual early adolescent activity participation has revealed a few key findings. Early adolescent participation in structured activities has related to lower depressive symptoms for a low-risk sample (McHale, Crouter, & Tucker, 2001), as well as lower drop-out rates for high-risk students (Mahoney & Cairns, 1997). Other research that focuses on early adolescent sport participation has shown that participation in different sports relates to different behavioral outcomes for males vs. females (Moore & Werch, 2005): (1) female participation in *out-of-school* dance, cheerleading, gymnastics, skateboarding or surfing was related to general substance use, (2) female

participation in school-sponsored dance, cheerleading, or gymnastics was related to lower rates of alcohol use, (3) male participation in out-of-school swimming was related to lower rates of alcohol use, and (4) male participation in school-sponsored football, swimming, and wrestling, or out-of-school tennis was related to higher rates of general substance use. Research with older adolescents has related participation in various structured activities to identity exploration, initiative, social skills, subjective well-being, and/or intrinsic motivation (Coatsworth, Palen, Sharp, & Ferrer-Wreder, 2005; Coatsworth, Sharp et al., 2005; Hansen, Larson, & Dworkin, 2003; Kleiber, Larson, & Csikszentmihalyi, 1986), yet other research demonstrates participation in some activities increases substance use (Eccles & Barber, 1999).

Community youth activity resources may be negatively related to youth problem behaviors through several pathways. First, it is possible that adolescent involvement in organized and structured youth activities decreases the idle time which has been related to youth problem behaviors (Caldwell & Smith, 1995; Gottfredson, Gottfredson, & Weisman, 2001; Mancini & Huebner, 2004; National Center on Addiction and Substance Use, 2003; Osgood, Anderson, & Shaffer, 2005). Second, it is possible that involvement in organized and structured youth activity activities increases students' emotional attachment to prosocial institutions, which in turn reduces the rate of adolescent substance use (Eccles & Barber, 1999; Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). Third, it is possible that adolescents learn skills and/or develop initiative and identity that is likely to prevent involvement in problem behaviors (Coatsworth, Palen et al., 2005; Larson, 2000).

This project reframes the question of adolescent activity participation that is frequently investigated at the level of the individual, to the level of the community. Is a community's level of youth activity resources for middle school students related to early adolescent problem behaviors? It is likely that a community that has more available resources and has more students involved in organized youth activities will have lower rates of early substance use and delinquency.

There has been a paucity of studies on the community-level availability of youth activities. One study assessed the presence of recreation centers and found that the presence of recreation centers protected high economic risk neighborhoods from experiencing high rates of violent crime (Peterson et al., 2000). Additionally, the availability of neighborhood recreation and other resources assessed through parent report as part of a broader measure of neighborhood quality positively related to adolescent school attendance and involvement in conventional activities (Cook et al., 2002).

It is hypothesized that community-levels of structured activity resources will positively impact the lives of middle school students: more structured opportunities will be related to lower rates of adolescent substance use and delinquent behaviors. Information will be collected through archival measurements and interviews with "youth activity experts."

Summary. Less research has focused on how collective efficacy and youth activity resources may relate to self-reported adolescent problem behaviors. However, given the available research and theory, it is expected that the both constructs will relate negatively to adolescent problem behaviors.

The Use of Geographic Information Systems

Assessing community risks and resources has recently been assisted by the use of GIS, or Geographic Information Systems (Mason, Cheung, & Walker, 2004; Skinner, Matthews, & Burton, 2005). Most generally speaking, GIS is a “special type of information systems” in which places, people, things, and/or incidences can be represented in physical space (Pickles, 1995). Its applications to social science and public health are extensive, and the history of its use goes back to John Snow’s examination of the cholera epidemic (Cromley & McLafferty, 2002; Pickles, 1995; Tufte, 1997). Visualizing data is just one application; GIS can also translate spatial relationships into numerical variables that can be used in statistical analysis (Vann & Garson, 2001; Wieczorek & Hanson, 1997).

GIS has been used in two main ways when assessing community-level and individual-level behavioral outcomes. On a very detailed level, it has been coupled with ethnographic methods to describe the use of transportation and specific community agencies (Skinner et al., 2005). It also has been used on a broader contextual level to locate and calculate rates of various community risks and resources (i.e. crime incidences, alcohol & tobacco outlets, etc.) within urban census tracts and city boundaries (Bowers & Hirschfield, 1999; Ernst, 2000; Freisthler et al., 2004; Murray, McGuffog, Western, & Mullins, 2001; Peterson et al., 2000; Zhu et al., 2004).

Combining the detailed examination of the location of the individual with the broader context of the community has only recently begun to happen. Mason and colleagues (2004) use GIS in a case study format to demonstrate the overwhelming presence of proximal risks to individual residences in urban settings (Mason et al., 2004).

In a mixed urban and rural setting, GIS has recently been used to assess the relationship between the proximity of alcohol and tobacco outlets with neighborhood satisfaction and social networks (Kruger, Brady, Shirey, & Sparks, 2005). They found that high numbers of alcohol and tobacco outlets within a 1 km radius of a person's home relates to lower ratings of neighborhood satisfaction and network density, however, in order to fully understand the role of distance, urbanicity and rurality, future studies might control for population density. Recent work in urban areas has extended these findings to show that the number of convenience stores (i.e. stores likely to be selling tobacco and alcohol products) within a one mile radius from an individual's home additively predicts individual adult rates of smoking (Chuang et al., 2005). This project expands on recent work by including rates of community risks and resources along with proximity variables at the individual-level to predict individual adolescent problem behaviors.

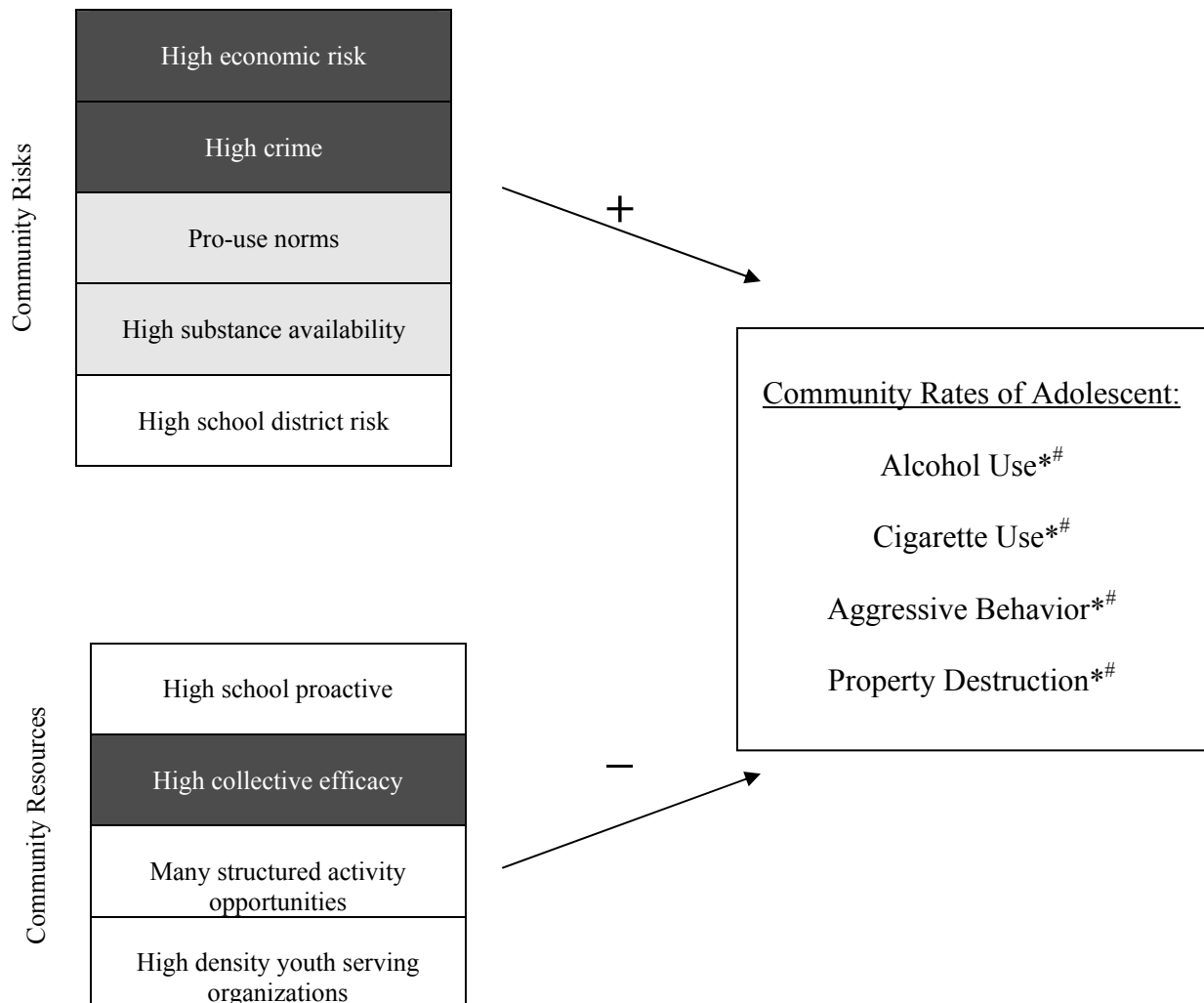
The Present Study

Research on youth problem behaviors has usually examined how individual perception of risk and resources are related to individual outcomes. Recently, research has begun to focus on how community-level risks and resources relate to community outcomes. Most of this work has been conducted in urban neighborhoods and cities. The present study is unique in that it will (1) examine the relationship between community risks and resources, with community-level rates of adolescent problem behaviors in a rural and small town context, and (2) use Geographic Information Systems (GIS) techniques to identify specific community risks and resources that are proximal to adolescents' residences. This second technique will then allow the examination of whether proximal measures of distance to both risks and resources within a community

add unique prediction to global community-level risk factors in predicting adolescent's problem behaviors. Research questions and hypotheses will examine the interrelationships among risks and resources, between risks and resources, and then their relationship with adolescent problem behaviors at the community level as well as the proximal experience of each youth (see Figure 1).

Figure 1

Model of how community risks and resources are theorized to predict youth outcomes



*Adolescent self-report [#]Aggregated data

Figure 1. Prevention Science places the included concepts into a risk and resource framework. The lightly gray shaded constructs are drawn from social capital whereas the ones shaded in dark gray are primarily drawn from social disorganization.

Research Questions and Hypotheses

Question 1: What are the relationships among community risks and resources in mostly rural communities?

The relationships among risk factors, among resources, and the cross risk/resource relationships will be examined:

- It is expected that risk factors that describe the school environment will positively relate to risk factors that describe the general community context.
- It is expected that all substance-use related risk factors will be positively related.
- It is expected that all community resources will be positively related.
- It is expected that collective efficacy will be negatively related to crime, the substance-use domain of risks, and school risks factors.

Question 2: How are community-level risks and resources related to community-level rates of youth problem behaviors?

Two sets of hypotheses will be investigated within this research question. First, main effects of risks and resources will be examined. Second, interactions with resources will be examined.

Main Effects

- Communities with high levels of risks will have higher rates of youth problem behaviors
- Communities with high levels of resources will have lower rates of youth problem behaviors

Interaction with Resources

- The availability of transportation will interact with community structured activity opportunities: the protective relationship between community structured activity opportunities and youth problem behaviors will be stronger when there is available transportation after school to allow access to these activities.

Question 3: How do community-level risks interact with community resources to predict rates of youth problem behaviors?

- The rate of risks and the rate of resources will interact: Community rates of youth problems will be lower in communities with many risks when the number of resources is also high.

Question 4: Does individual youth's proximal experience of community-level factors add to predicting their youth problem behaviors?

Three specific hypotheses will be examined within this question.

- The proximity of alcohol and tobacco outlets near an individual's home will additively and positively relate to youth problem behaviors after accounting for other community risks
- The proximity of youth serving organizations near an individual's home will additively and negatively relate to youth problem behaviors after accounting for other community resources
- The crime rate of the sub-area in which an individual lives will additively and positively relate to youth problem behaviors after accounting for other community risks

Chapter 2

METHOD

Primary eligibility criteria for communities considered for the project were, (a) school district enrollment between 1,301-5,200 students located in non-metropolitan areas, and (b) districts with at least 15% of families eligible for free or reduced cost lunches. Communities were excluded from consideration if they were involved in other university-affiliated youth-prevention research projects and if over half of the population was either employed by or attending a university. The participating universities' Institutional Review Boards authorized the study before participant recruitment began.

The sample includes all 28 sites of the PROSPER (PROmoting School-university-community Partnerships to Enhance Resilience) project. The PROSPER project is a randomized (at the level of the community) trial of a new dissemination system for empirically validated prevention programs. The Cooperative Extension System [CES] plays a central role in the partnership (Spoth, Greenberg, Bierman, & Redmond, 2004). Local CES educators work with a representative of the local public school system to build a community team that assesses the health and well-being of their youth and families. This community team is connected to appropriate education and prevention resources at the university and state-level by extension prevention coordinators. The community team selects, receives training, and oversees the implementation of empirically validated prevention programs with support from the extension prevention coordinators and university resources.

The PROSPER project began to test this model with targeting adolescent

substance use. Rates of adolescent substance use are typically high in rural and small town communities (Edwards, 1995). Communities choose from a menu of three family-focused interventions to implement to sixth graders and three school-based programs to implement to seventh graders in consecutive years. Outcomes of students, community characteristics, team processes and program sustainability actions are being followed for a minimum of five years.

Participants & Procedures

Data for this specific project is collected from a total of eight different sources: 1) interviews with key community leaders, 2) interviews with directors of human service agencies, 3) interviews with middle school principals, 4) interviews with youth activity experts, 5) surveys collected from 8th grade students, 6) census data, 7) other archival data sources, and 8) data derived from GIS technologies. Individuals involved in the various data collections were recruited in many ways and at a few different time points. More specific information about the samples and the measures derived from these samples is described below; Table 1 contains a listing of the measures, the targeted sample for each measure, and the time point at which each construct was collected.

Table 1

Listing of measured constructs, the targeted sample and time point at which the measures were collected

Construct	Sample / Data Source*	Year / Time Point of Data Collection
Broad Community Context Constructs		
Population Density	Census / NCES	2000
Percent White	Census / NCES	2000
Residential Instability	Census / NCES	2000
Metropolitan Status	NCES	2003
Community Risks		
Economic Risk		
Community Poverty	Census / NCES	2000
District Low Income	School District Reports	2001-2002 School Year
Crime Rates		
Violent	State Uniform Crime Reports	2002, 2003, 2004
Property	State Uniform Crime Reports	2002, 2003, 2004
Narcotics	State Uniform Crime Reports	2002, 2003, 2004
Substance Use Norms	TM Interviews	May 2002
Substance Availability		
Perceived by Adults	TM Interviews	May 2002
Density of Alcohol Outlets	State Agencies	August 2005
Density of Tobacco Outlets	State Agencies	August 2005
School District Risk		
District Academic Risk	School District Reports	2001-2002 School Year
School Problems	TM & AD Interviews	May 2002
Community Resources		
School Proactive	TM & AD Interviews	May 2002
Collective Efficacy		
Community Attachment	TM & AD Interviews	May 2002
Community Initiative	TM & AD Interviews	May 2002
Youth Activity Opportunities		
Perceived Availability	TM, AD, SP, AE Interviews	Oct 2005 – Feb 2006
Rate of Structured Activities	TM, AD, SP, AE Interviews	Oct 2005 – Feb 2006
Time Spent in Structured Activities	SP & AE Interviews	2005-2006 School Year
Density of Youth Serving Organizations	Online Phone Books	Fall 2005
Individual Youths' Experience of Community Factors		
Experience of Crime	GIS	2002, 2003, 2004
Proximity to Substances	GIS	August 2005
Proximity to Youth-serving Organizations	GIS	Fall 2005
Adolescent Problem Behaviors		
Lifetime Use		
Ever Drink Alcohol	8 th Grade Students	Spring 2005
Ever Smoke Cigarettes	8 th Grade Students	Spring 2005
Delinquent Behavior		
Violent Behavior	8 th Grade Students	Spring 2005
Property Destruction	8 th Grade Students	Spring 2005

Table 1, *Continued*

Other Proposed Variables		
School District Transportation	SP Interviews	Fall 2005
Control Variables		
Intervention Condition	na	na
Student Gender	8 th Grade Students	Spring 2005
Family SES	8 th Grade Students	Spring 2005
* Sample abbreviations are as follows: TM = Team Member / AD = Agency Director / SP = School Principal / AE = Activity Expert		

Key community leader sample. The key community leader sample includes 226 individuals. Recruitment of these individuals coincided with the start of the project in the spring of 2002. In the intervention communities, individuals consist of local stakeholders recruited for the PROSPER project teams. These individuals include local cooperative extension and school representatives, local mental health and substance abuse agency representatives, and parents. In the control communities, similar representatives from Extension, the school, and community were recruited. Respondents ranged in age from 22-62 ($M = 43.0$, $SD = 8.89$), 31% of respondents were male, and 99% are white. All respondents indicated completing a minimum of a high school education or GED, with 92.3% of the sample having obtained a minimum of a college degree. The majority of the sample (80.2%) lived in or near the school district that was recruited for the PROSPER project. From this point forward, this group of individuals will be called *team members*.

Directors of human service agencies. The agency director sample includes 92 individuals. Recruitment of these individuals also coincided with the start of the project in the spring of 2002. In both intervention and control communities, these individuals are the supervisors of team members that work for a human service agency or the school district (e.g. supervisor of mental health, substance abuse, cooperative extension, etc.). Respondents ranged in age from 25-65 ($M = 47.4$, $SD = 9.54$), 73.1% of the sample is male, and 100% are white. All respondents indicated completing a minimum of a high school education or GED, with 96.8% of the sample having obtained a minimum of a college degree. From this point forward, this group of individuals will be called *agency directors*.

Middle school principals. The middle school principal sample includes 33 individuals that are in charge of the 7th and 8th grade students. At the time of data collection, tenure as building principal averaged 5.38 years (range 0 – 19.0, $SD = 6.5$). From this point forward, this group of individuals will be called *school principals*.

The team member, agency director, and school principal samples were recruited by the local extension educators and school district representatives. These individuals participated in one-hour computer-assisted face-to-face interviews in 2002 and every year thereafter. The team members and agency director samples were compensated with \$20.

Youth activity experts. The youth activity expert sample is divided into two groups. The first group of initial participants includes 98 individuals for a total of 106 interviews; eight individuals were knowledgeable about two different communities. On average, 3.8 interviews were conducted within each community (range 3-5). Individuals targeted for this sample were selected after discussion with local community members involved in the PROSPER project. In both intervention and control communities, these individuals are community members that are most directly involved in planning, administrating, and/or leading a variety of activity programs for middle school students (e.g. Extension 4-H youth development educators, PE teacher at the middle school, a local parks and recreation official and/or a YMCA leader, youth minister, etc.). Thirty-nine percent of the sample is male.

The second group of respondents within this sample category is directors of specific youth activity programs. One hundred thirty-three individuals were interviewed within this group, for an average of 4.75 per community (range 3-10). From this point forward, individuals within these groups will be referred to as *activity experts*.

The youth activity expert sample was recruited specifically for this project through phone calls to individuals that fit the roles described above by university-based interviewers. The first group of respondents within this category participated in a 45-minute structured phone interview. After this data was collected, ten-minute follow-up phone calls were made to the second group of respondents, the directors of the most influential youth activities, in each community.

Duplication of interviewees. There is some duplication in which a single individual may serve in multiple roles. For example, principals may also serve as team members. Similarly, county extension educators are team members but in some cases also completed the youth activity expert interview. For this reason, the total number of respondents does not quite equal the sum of each respondent profile.

On average, the total number of respondents in the team member and agency director samples that were interviewed in each community is 11.5. A slightly lower number of team members and agency directors were interviewed in the control communities as they are used for comparison purposes to assess community characteristics and outcomes, rather than assess team dynamics (8.7 in the control communities vs. 14.4 in the intervention communities). The average number of school principal respondents in each community is 1.2 (range from 1-2 middle school principals per community). Additionally, an average of 8.5 activity experts was contacted in each community.

Student sample. The full youth sample used in community-level analyses includes a total of 5261 individuals, for an average of 187.9 students per community (range 84-395). All respondents were in the eighth grade in the PROSPER communities

at the time of the survey. Respondents ranged in age from 12.5-16.3 ($M = 14.3$, $SD = 0.43$), 49.6% of the youth participants are male, and 85.3% of the respondents are white or Caucasian, which is representative of mostly rural and small town communities in the mid-west and north-eastern United States. The remaining sample consisted of a mix of racial/ethnic minorities (6.0% Hispanic/Latino, 3.2% African American, 1.3% Native American, 1.4% Asian, and 2.8% Other).

A sub-sample of 5003 students (95.1% of the sample) were successfully geocoded. This sub-sample was used for individual-level analyses. Demographic characteristics for this sub-sample match the full sample: the average age of the students is 14.3; 49.5% of the students are male, and 85.3% of the students are white or Caucasian.

The students were recruited from all eighth grade classes during the 2004-2005 school-year in participating community school districts. The 2004-2005 school-year was the third year within which the students participated in the survey. A passive parental consent process (approved by both universities' Institutional Review Board committees) which allowed parents to decline participation for their student was conducted prior to the in-school administration of the 45-minute paper and pencil survey. Surveys were administered by teams of two to three individuals that were trained in a standardized protocol in which students were assured confidentiality and given the opportunity to decline participation themselves. Nearly 90% of the eighth grade students participated in the survey. Students needing assistance reading the items were assisted one-on-one.

Geographic information systems (GIS) methods. As described below, there are several measures that employ the use of GIS. GIS software can match specific street

address locations to particular latitude and longitude locations in physical space with the help of a comprehensive street-file database (i.e. to *geocode* an address). All address locations were geocoded by a GIS specialist using ArcGIS 9.1 (Environmental Systems Research Institute, 2005); 20% of the geocoded address locations were checked for quality control with online mapping services. In all, 95% of the student addresses, 87% of the youth activity locations, 95% of the alcohol retail locations and 88% of the tobacco retail locations were successfully geocoded.

Measures

Several scales describing community characteristics and early adolescent problem behaviors were constructed. The measures in Table 1 are described in more detail below. Unless otherwise mentioned, aggregated community means were derived for all the community risk and resource scales from individual interviews. In the following section, independent variables are described first in the following order: community risks, community resources, then the individual youth's proximal experience of community risks and resources. Following the hypothesized community risks and resources there is a short section that describes four broad community context variables. All dependent measures are described at the end of this section.

Economic risk. Two measures assess community economic risk: *community poverty*, the percent of families within the district boundaries living below the poverty threshold (National Center for Education Statistics, 2003; US Census, 2000), and *district low income*, the percent of students receiving free or reduced cost lunches as reported by school district offices¹.

Crime rates. School district-level and agency-level crime rates were computed

¹ See Duncan & Meyer (2004) for technical documentation.

from agency-level summary reports from both states' Crime Reporting Systems. Pennsylvania uses the Uniform Crime Reporting System (Pennsylvania State Police, 2005) and Iowa uses the Incident Based Reporting System (Coco, 2005). As in other research (e.g. Lee & Ousey, 2001; Osgood & Chambers, 2000) multiple years of data (years 2002, 2003, and 2004) were averaged to correct for possible reporting biases². Three indices of crime are utilized to create an overall crime measure (a standardized average of all three indices): the rate of violent crimes, property crimes, and narcotic crimes. School district crime rates that represent the number of crimes per 100,000 people were computed in a three step process (See Appendix A for an example map document of this process). First, the number of crime incidents in each crime jurisdiction area within school district boundaries was weighted by the percent of that crime agency area that is geographically located within the school district boundaries. Second, the weighted crime incidents for each crime jurisdiction were summed within each school district. Third, the summed number of incidents were divided by the total population within the school district boundaries, and then multiplied by 100,000, to create a rate of crime incidents per 100,000 people.

Substance use norms. Substance use norms ($\alpha = .80$) is a 4-item scale adapted from the Minnesota Community Readiness Survey (Beebe et al., 2001) assessing key leaders' perceptions of the community's acceptance of adolescence alcohol and tobacco use; an example item is, "Adults in [this community] think the use of alcohol is a normal part of growing up." These questions are asked to the Team Member sample. Response

² Crime reporting is a voluntary in both Pennsylvania and Iowa. Crime rates were unable to be computed for one PA school district because the four municipalities that the school district serves have not reported any crime data to the State, and efforts to get this information from the municipal offices directly not successful. Hence, the n for all analyses which include this district is 27 instead of 28.

options ranged on a 4-point scale from “Strongly Disagree” to “Strongly Agree.”

Substance availability. Two scales measure the community availability of alcohol and tobacco to adolescents. One scale is adapted from the Minnesota Community Readiness Survey (2-items, $r = .51$) (Beebe et al., 2001). Team Members were asked, “How easy is it for middle school students in your community to obtain [alcohol / tobacco]?” Response options ranged on a 4-point scale from “Very Difficult” to “Very Easy.”

The second scale is derived from GIS measures of the *density of alcohol* and *density of tobacco outlets* per 10 km of roadway. Densities per 10 km of roadway were used because of they best represent physical availability of the substance (Gruenewald, Ponicki, & Holder, 1993). These data were derived from information provided by the PA Department of Revenue (PA tobacco), PA Liquor Control Board (PA alcohol), and the IA Alcohol Beverages Division (tobacco & alcohol). Density scores were created separately for alcohol and tobacco in a three-step process. First, the address locations of these outlets were geocoded. Second, the number of alcohol and tobacco outlets that were located within the school district boundaries were summed. Third, the number of alcohol and tobacco outlets within each school district was divided by the number of kilometers of roadway within the district, and then multiplied by 10, to create an average number of alcohol and the average number of tobacco outlets within 10 km of roadway ($r = .93$)

School functioning. Three scales assess school district functioning. First, *district academic risk* is a measure based on the percentage of 8th grade students in each district that did not achieve “proficiency” on the math and reading statewide standardized tests in 2002. Because each state uses a different test, a three-step process was used to

manipulate the data into a useable form. First, each district was rank-ordered within each state from the lowest scoring to the highest scoring district separately for the math and reading tests. Second, an overall district academic achievement variable was created by taking the mean of the math rank and reading rank scores. Third, this variable was reverse scored such that higher scores indicated worse achievement.

Additionally, two interview measures drawn from the Team Member and Agency Director samples assess school district functioning. The school problem scale is a potential community risk, whereas the school proactive scale is a potential community resource. *School problems* is a 2-item scale ($r = .33$) that assesses the degree to which the school is perceived to be plagued with problems; an example item is: “Problems seem to overwhelm the middle school.” *School proactive* ($\alpha = .80$) is a 4-item scale that assesses the degree to which the school leadership is perceived as effective and proactive; an example item is: “The middle school does a good job of reaching out to parents.” Response options ranged on a 4-point scale from “Strongly Disagree” to “Strongly Agree.”

Collective efficacy. Two sub-scales were drawn from the community readiness scale (Chilenski, Greenberg, & Feinberg, in press) to assess collective efficacy: community attachment and community initiative. These scales were drawn from the Team Member and Agency Director samples. These scales are conceptually congruent to those used by Sampson and colleagues (1997), but are slightly modified because of the larger project intent to predict both youth outcomes and prevention team functioning. *Community attachment* is a 3-item scale ($\alpha = .56$; adapted from Wandersman and colleagues (1987) measuring the level of resident investment and closeness in a

community; an example item of community attachment is: “Most people who live here feel a strong tie to this community.” *Community initiative* is a 4-item scale ($\alpha = .65$; adapted from Feinberg and colleagues (2004)) measuring the level of active engagement of community members; an example item (reverse scored) of community initiative is: “It is difficult to get people in this community involved in community activities.” Response options ranged on a 4-point scale from “Strongly Disagree” to “Strongly Agree.”

Youth-serving organizations. The density of *youth-serving organizations* was derived through searches of online phone books (superpages.com, 2005) and through the YMCA main web-page (YMCA, 2005). Two searches were conducted to ensure a comprehensive list of youth-serving organizations was generated. The first search included inputting the name of the main town and state of the school district into the appropriate search fields, along with a 30 mile radius as the catchment area. The second search was modified slightly in that it used the zip codes of the students that attend each district as the anchor point from which to search. In this search the zip code was put into the main search page and a slightly smaller, 20-mile radius was used as the catchment area. In both searches, the category listings used for the online phone books were “youth organizations, centers, and clubs,” “youth service organizations,” “all sports and recreation clubs and organizations,” “martial arts instruction,” and “dance studios.” Any organization that was focused on adults was not included in the database. In every case, the zip-code based search yielded few additional listings. Additionally, the street addresses of the activity organizations were put into the American Fact Finder Web Page (US Census, 2005) in order to ensure that a larger geographic area than the specific school districts in question was being captured through the above search methods. Both

of these procedures confirmed that a comprehensive listing of possible organizations was generated. The community sample average is 0.14 youth serving organizations for every 10 km of roadway ($SD = .13$). That number equates to on average, one youth serving organization for every 44.5 miles of roadway.

Youth activity opportunities. Three scales assess community availability of structured youth activities: perceived availability, the student rate of structured activities, and the average time spent in structured activities. First, the *perceived availability* of structured youth activities for middle school students is assessed through a 3-item scale ($\alpha = .75$) that was drawn from all interview respondent samples. An example item is: “There is little for middle school students in this community to do” (reverse scored). Response options ranged on a 4-point scale from “Strongly Disagree” to “Strongly Agree.”

Second, a student *rate of structured activities* was created for each community from information that was gathered through the interviews with the first round of Activity Experts (see Appendix B for the interview protocol). This scale was created by summing all unique “yes” organization & category type responses within each community, and then dividing by the middle school population and multiplying by 1,000 (i.e. to result in the number of activities available per 1,000 middle school students. As indicated in Table 2, on average, there are 10.72 types of structured activities ($SD = 4.41$) available for every 1,000 middle school students.

The categories of structured activities were developed based on the individual-participation literature (e.g. Coatsworth, Sharp et al., 2005; Eccles & Barber, 1999), but were modified slightly due to the participant age and goals of the study: the “socializing”

category was omitted, and the “instrumental” category was divided into “academic” vs. “special interest.”

The third scale, *time spent in structured activities*, assesses the average number of hours a typical middle school student in each district participates in structured activities over the course of the school-year. This scale was derived in a three-step process from information obtained from the follow-up sample of Activity Experts (see Appendix C for interview protocols). First, the number of participants, the number of weeks, and the average number of participation hours each student spent in the activity each week were multiplied together for each of the three most influential activities.³ Second, the total number of participation hours was summed across the most influential activities. Third, the total number of participation hours in the most influential activities was divided by the middle school student population.

Transportation resources. Middle school principals were asked, “Does this school provide busses to get students home from after school activities?” to assess school district transportation resources. Response options were coded yes = 1, and no = 0.

Individual youth’s experience of community factors. Four individual-specific measures were created that describe individual youth’s proximal experience of the community factors: an individual’s proximity to alcohol, an individual’s proximity to tobacco, an individual’s proximity to youth-serving organizations, and an individual’s experience of crime.

An individual’s *proximity to alcohol*, *proximity to tobacco*, and *proximity to youth-serving organizations* was derived using GIS methods that locate the number of these locations within a one mile radius (i.e. “buffer”) of the students’ residences.

³ See Appendix D for detailed information about how the three most influential activities were chosen

Separate indexes were created for alcohol outlets, tobacco outlets, and youth-serving organizations. On average there were 10.50 ($SD = 10.41$) alcohol outlets, 6.50 ($SD = 6.42$) tobacco outlets, and 1.83 ($SD = 2.60$) youth-serving organizations within one mile of the students' residences.

An individual's *experience of crime* was assessed through GIS methods that identify within which crime jurisdiction the student lives. To accomplish this, a spatial join was conducted that gave students the properties of the crime jurisdiction within which each student lives. Each student, then, receives that specific crime jurisdiction's overall crime measure (i.e. a standardized average of violent, property, and narcotic crime rates per 100,000 people) as the experience of crime score.

Broad community context constructs. Four additional constructs are included in analyses to be consistent with prior research on the community context. *Community ethnicity* is measured as the percent of the population that reported to be white or Caucasian in the US Census (National Center for Education Statistics, 2003; US Census, 2000). *Residential instability* is the percentage of residents (in the year 2000) over the age of five that have moved their residence at some point during the previous five years (National Center for Education Statistics, 2006; US Census, 2000). *Community metropolitan status* describes the adjacency of the school district to a core population area (NCES, 2006). Communities that are not within or adjacent to a metropolitan area are scored as "0"; those that are within or adjacent to a metropolitan area are scored as "1". The last broad community context measure included is population density, the number of residents per square mile (NCES, 2006; US Census, 2000).

Adolescent problem behaviors. Individual and community-rates of adolescent

alcohol use, cigarette use, aggressive behavior, and destruction of property are the dependent variables of interest in this project. Response options for all items were coded to be dichotomous: 0 = no / 1 = yes. All items come directly from or were adapted slightly from the National Youth Survey instruments (Elliott, Huizinga, & Ageton, 1985; Elliott, Huizinga, & Menard, 1989), as self-report measures are used frequently to assess adolescent problem behaviors, and have been shown to have good reliability and validity (Luepker et al., 1981; O'Malley, Bachman, & Johnston, 1983; O'Malley, Johnston, Bachman, & Schulenberg, 2000; Patrick et al., 1994; Wills & Cleary, 1997).

Adolescent *alcohol use* was assessed through the question: “Have you ever had more than just a few sips of alcohol?” Adolescent *cigarette use* was assessed through the question: “Have you ever smoked a cigarette?” Adolescent *aggressive behavior* was assessed with two items in a three-step process. First, student responses on a 5-point Likert scale (1 = never / 2 = once / 3 = twice / 4 = three or more times / 5 = five times or more) were rescored to 1 = at least once / 0 = none, to two questions: “During the past 12 months how often have you... [...beat up someone or physically fought with someone because they made you angry (other than just playing around)? / ... thrown objects such as rocks or bottles at people to hurt or scare them?]”. Second, students that responded “At least once” on one or both of the scales were given a “1” on the aggressive behavior scale, whereas students that responded “never” on both scales were given a “0.”

Adolescent *destruction of property* was assessed with one item: “During the past 12 months how often have you purposely damaged or destroyed property that did not belong to you?” Student responses were rescored into 1 = at least once / 0 = never. Lastly, an adolescent problem behavior index was created as a summed score of the above 4 items

($\alpha = .69$).

Student responses on each scale were used aggregated to the community level to create community rates of adolescent alcohol use, cigarette use, aggressive behavior, and destruction of property.

Descriptive Statistics

Table 2 presents descriptive information for all constructs included in this project. Overall, the sample is majority white, however, community student sample is more diverse (87% white) than Census variables (95.6% white) would suggest. Rates of residential instability are relatively low, with an average of 37.7% of the population having moved residences at some point between the years 1995-2000. Population density is widely variable (range 22.0 – 2890.3 persons per square mile), yet even the most densely populated community is lower than a typical urban school district. Crime rates and poverty rates are also relatively low compared to national averages on those variables. The average community rate of dual parent households is 77% ($SD = 0.04$), which is higher than the national average at 68% (Population Resource Center, 2004). See Appendix E for a table listing of this sample's average characteristics compared to national averages.

The average community-level rates of alcohol and cigarette use are slightly higher than national averages as reported by the Monitoring the Future Survey (Johnston, O'Malley, Bachman, & Schulenberg, 2006). In the present sample, the average community rate of alcohol use of students by the spring of their 8th grade year is 45% ($SD = 0.07$), and the average community rate of cigarette use is 32% ($SD = 0.09$). National rates as reported by the Monitoring the Future Survey for 8th grade students in 2005 are

41.0% for alcohol use and 25.9% for cigarette use (Johnston et al., 2006). Comparison of rates of aggressive behavior and destruction of property are less conclusive, as the youth risk behavior survey monitoring system asks comparable questions to 9-12th grade students; surveys given to middle school students assess lifetime involvement in aggressive behaviors and destruction of property (Centers for Disease Control and Prevention [CDC], 2006). Nonetheless, the average community rate of aggressive behavior is 32% ($SD = 0.09$) and for destruction of property is 21.0% ($SD = 0.05$). Rates of 9th grade involvement in these behaviors as reported by the Youth Risk Behavior Survey are 43.5% for aggressive behavior, and 29.8% of student had their property damaged on school property (CDC, 2006). These rates appear relatively close to the national average. Overall, community demographics describe these communities to be at a slightly lower risk for adolescent problem behaviors, however, observed rates are to the contrary. Rates of substance use and delinquent behaviors are relatively similar to national averages, and in some cases, rates of these behaviors are a bit higher than national averages.

Table 2

Descriptive statistics of sub-scales and community context variables

<i>Scale</i>	<i>N</i>	<i>Percent</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Broad Community Context Variables						
Percent White	28		95.55	3.17	87.80	99.00
Residential Instability	28		37.65	6.15	25.39	45.51
Population Density	28		372.99	577.85	22.03	2890.26
Metropolitan Status	28		0.39	0.50	0.00	1.00
Non-metropolitan Statistical Area (0)	11	39.3%				
Metropolitan Statistical Area (1)	17	60.7%				
Community Risks						
Community Economic Risk						
Community Poverty	28		6.81	1.93	1.80	10.70
District Low Income	28		29.45	8.96	10.40	48.00
Community Substance Use Risk						
Perceived Availability	28		3.11	0.26	2.69	3.75
Density of Alcohol Retailers	28		0.94	0.88	0.07	3.97
Density of Tobacco Retailers	28		0.59	0.52	0.02	2.02
Community Norms	28		2.61	0.30	2.16	3.31
Community Crime Rates						
Violent Crime Rate	27		284.73	197.35	13.27	674.24
Property Crime Rate	27		2617.19	1357.17	837.68	6208.22
Narcotic Crime Rate	27		267.28	135.46	82.49	511.34
School District Risk						
District Academic Risk	28		7.50	3.65	1.00	14.00
School Problems	28		2.49	0.34	1.62	3.00
Community Resources						
Collective Efficacy	28		2.85	0.22	2.41	3.32
Community Attachment	28		3.31	0.21	2.93	3.73
Community Initiative	28		2.39	0.27	1.81	2.90
School Proactive	28		3.15	0.27	2.63	3.70
Structured Activity Resources						
Perceived Availability of Activities	28		2.83	0.26	2.31	3.38
Student Rate of Structured Activities	28		10.72	4.41	3.57	20.97
Time Spent in Structured Activities	28		104.07	47.22	23.91	209.39
Density of Youth Serving Organizations	28		0.14	0.13	0.01	0.50
Community-level Student Demographics						
Gender	28		0.50	0.04	0.42	0.56
Two Parent Households	28		0.77	0.04	0.66	0.87
Age	28		14.32	0.09	14.12	14.49
Ethnicity	28		0.87	0.09	0.62	0.96

Table 2, Continued

<i>Scale</i>	<i>N</i>	<i>Percent</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Community-level Student Outcomes						
Alcohol Use	28		0.45	0.07	0.31	0.59
Cigarette Use	28		0.32	0.09	0.17	0.53
Aggressive Behavior	28		0.33	0.05	0.22	0.44
Property Damage	28		0.21	0.05	0.07	0.29

Analysis Considerations

Two main issues need to be considered before analyses and results are described: intervention condition and statistical power. Although the data for this project are drawn from a randomized community-level intervention study, this study will not investigate main intervention effects. As a result, intervention condition was included as a control variable.

Statistical power also warrants consideration. Whereas 28 communities is not a large number, it is substantial considering the depth and breadth of the present study. Effect sizes in former research along with several power analyses were considered to assess the appropriate significance level for the community-level analyses in the present study. Given that effect sizes in previous community-level research that include similar concepts usually fall in the moderate range ($r = .30$ through $r = .45$), and the power analyses results presented in Table 3, the present study will use an approximate effect size of $r = .35$ with a $p \leq .10$ as the minimal statistics significance criterion for community-level analyses. In other words, the current study has statistical power of .70 at $p \leq .10$ to explain 10% of the variance in the dependent variable (UCLA Department of Statistics, 2004). Scatterplots and fit statistics will also be inspected to guard against generalizing results to the entire sample when they are being driven by possible outliers.

Table 3

Statistical power for various levels of effect size given different levels of probability and an $N = 28$ with a 1-tailed test

Probability	Effect Size			
	ES = .30	ES =.35	ES =.40	ES =.45
$p \leq .15$	.68	.78	.85	.91
$p \leq .10$	.60	.70	.79	.87
$p \leq .05$	.45	.56	.67	.77

Chapter 3

RESULTS

Specific Aim 1: To understand the relationship among community-level risks and resources in a rural and small town context. Two-tailed Pearson correlations with a minimum significance criteria of $p = .10$ were run to investigate this specific aim.

Hypothesis 1. Community risk factors that assess the general community context (poverty measures and crime rates) will be positively related to those that describe the school environment (school district academic risk and school problems).

This hypothesis has mixed findings (see Table 4). Community poverty has a positive association with district academic risk ($r = .67, p < .01$); communities that have a larger population under the federal poverty standard have more students not meeting proficiency standards. Similarly, the percentage of students receiving free or reduced cost lunches is related to district academic risk ($r = .67, p < .01$) as well as with school problems ($r = .42, p < .05$); school districts that have a larger low income population are perceived to be overridden with challenges.

Out of the three indices of crime, the rate of violent crimes had a positive association with district academic risk ($r = .55, p < .01$); school districts that had higher rates of violent crimes also had more middle school students not meeting academic proficiency standards. The rates of property crimes and narcotics crimes did not associate with either measure of school district functioning.

Summary. Community poverty, low income, and academic risk are all positively related, whereas the perception of school problems was only related to the percentage of

the population that is considered low-income. Additionally, the rate of violent crimes was the only crime variable to have a significant and strong relationship with one measure of school district functioning, district academic risk.

Table 4

Correlations among risks that describe the general community context and school district functioning

	Community Poverty	Low Income	Violent Crime Rate	Property Crime Rate	Narcotic Crime Rate	District Academic Risk	School Problems
Community Poverty	1.00						
Low Income	.68**	1.00					
Violent Crime Rate	.42*	.45*	1.00				
Property Crime Rate	.24	.31 ⁺	.60**	1.00			
Narcotic Crime Rate	.33 ⁺	.40*	.35 ⁺	.64**	1.00		
District Academic Risk	.67**	.67**	.55**	.20	.04	1.00	
School Problems	.04	.43*	.20	.19	.17	.47**	1.00

⁺ $p < .10$; * $p < .05$; ** $p < .01$

Hypothesis 2. Community risk factors that explicitly describe substance use will be positively related (substance use norms, perceived availability, density of alcohol and tobacco outlets).

This hypothesis is confirmed (See Table 5): all measures of substance availability and the community norms of adolescent alcohol and tobacco use were in the expected direction. A few specific results are worth noting here. First, the geographic density of alcohol outlets had a strong relationship with the geographic density of tobacco outlets ($r = .93, p < .01$); where there are more places to purchase alcohol there are more places to purchase tobacco. Second, the geographic density measures of availability also had moderate to strong associations with measures of perceived availability. Lastly, the geographic density measures had stronger associations with the community norms of adolescent alcohol and tobacco use than the perceived measures of availability.

Table 5

Correlations among risks that describe the substance use risk

	Density of Alcohol Retailers	Density of Tobacco Retailers	Perceived Access to Alcohol	Perceived Access to Tobacco	Norms of Alcohol & Tobacco Use
Density of Alcohol Retailers	1.00				
Density of Tobacco Retailers	.93**	1.00			
Perceived Access to Alcohol	.32 ⁺	.27	1.00		
Perceived Access to Tobacco	.47**	.52**	.51**	1.00	
Norms of Alcohol & Tobacco Use	.31 ⁺	.38*	.19	.19	1.00

⁺ $p < .10$; * $p < .05$; ** $p < .01$

Hypothesis 3. All community resources will be positively related (community initiative, attachment, school proactive, structured activity opportunities).

This hypothesis received mixed support (See Table 6). Indeed, the community attachment construct had a strong positive association with community initiative ($r = .60$, $p < .01$); when community members had a strong emotional attachment to their communities they also had more initiative to get involved in activities that would improve the area. Additionally, both community attachment and community initiative had moderate to strong associations with the perceived availability of structured activities ($r = .38$ and $r = .60$, respectively); it was perceived that there were more opportunities for middle school students to get involved in structured activities when community members liked their community and had more initiative to get involved to improve their community. The perceived availability of structured activities had a positive moderate association with the student rate of structured activity opportunities ($r = .39$, $p < .05$); there were more structured activity opportunities available for each student in the district when it was perceived that there were many opportunities for students to get involved in structured activities.⁴

The school proactive construct had a strong positive association with the density of youth serving organizations ($r = .59$, $p < .01$); the school leadership was perceived to

⁴ Additionally, though nonsignificant, the time spent in structured activities measure had a small positive relationship with the per student density of structured activities ($r = .25$). Investigation of the scatterplot drew attention to two possible overly influential data points that worked to draw the correlation closer to zero. Post hoc analyses were run to investigate the influence of these data points. Without these two data points, the correlation between these two constructs increases ($r = .54$, $p < .01$), whereas all other bivariate associations are stable; these two communities had a higher than expected student rate of structured activity opportunities given the time spent in structured activities. One contextual similarity was found between these two communities that may explain the higher than expected student rate of activities: both of these communities had an extremely involved and proactive classroom teacher as one of their community's activity expert interview respondents. These teachers were extremely knowledgeable about structured activity opportunities for middle school students. Given this information, a correlation equal to .25 is a low-estimate of the association between these two variables.

be able to follow-through with goals and reach out to families when there was a greater geographic density of youth-serving organizations in the district.

Table 6

Correlations among community resources

	Community Attachment	Community Initiative	School Proactive	Perceived Availability of Activities	Density of Youth Serving Organizations	Student Rate of Structured Activities	Time Spent in Structured Activities
Community Attachment	1.00						
Community Initiative	.60**	1.00					
School Proactive	-.06	.16	1.00				
Perceived Availability of Activities	.38*	.60**	.11	1.00			
Density of Youth Serving Organizations	-.12	-.09	.59**	.04	1.00		
Student Rate of Structured Activities	.06	.25	-.06	.39*	-.13	1.00	
Time Spent in Structured Activities	.05	.12	.08	.10	.01	.25	1.00

⁺ $p < .10$; * $p < .05$; ** $p < .01$

Hypothesis 4. Collective efficacy will be negatively related to crime, substance-use domain of risks, and school risk factors.

This hypothesis received mixed support (see Table 7). Whereas collective efficacy did not significantly associate with the measures of crime or the substance availability measure, they did have moderate negative associations with community norms of adolescent substance use ($r = -.39, p < .05$) and both measures of school district risk (academic risk, $r = -.41$; school problems, $r = -.47$).

A series of post hoc analyses with a-priori theoretical considerations were run to investigate and understand the null association between the collective efficacy and crime measures. First, the possibility that a non-linear relationship exists between collective efficacy and crime was explored: it is possible that in extremely low crime communities, the level of crime does not contribute to a community's sense of collective efficacy, or vice-versa. Investigation of the scatterplot supported this hypothesis as a possibility (see Figure C). Pearson correlations were computed with the sample split into "above average crime" communities and "below average crime" communities, with the expectation that the correlation between these two variables would be negative and moderate in the above average crime communities, and zero in the below average crime communities. This hypothesis was not supported: the association between collective efficacy and crime was moderate and negative both in above average ($r = -.37$) and below average ($r = -.33$) crime communities.

To further understand this post hoc analysis, state differences were examined. Two sets of analyses were done: chi-squared frequency tables and state specific correlations. The results are inconclusive. The Chi-squared test examined whether there

was an overabundance of communities from one state in the high crime vs. low crime category. This test was nonsignificant $\chi^2(1, N = 27) = 1.90, p = .17$, which indicated a relatively even distribution of Iowa and Pennsylvania communities within the high crime vs. low crime categories.

Table 7

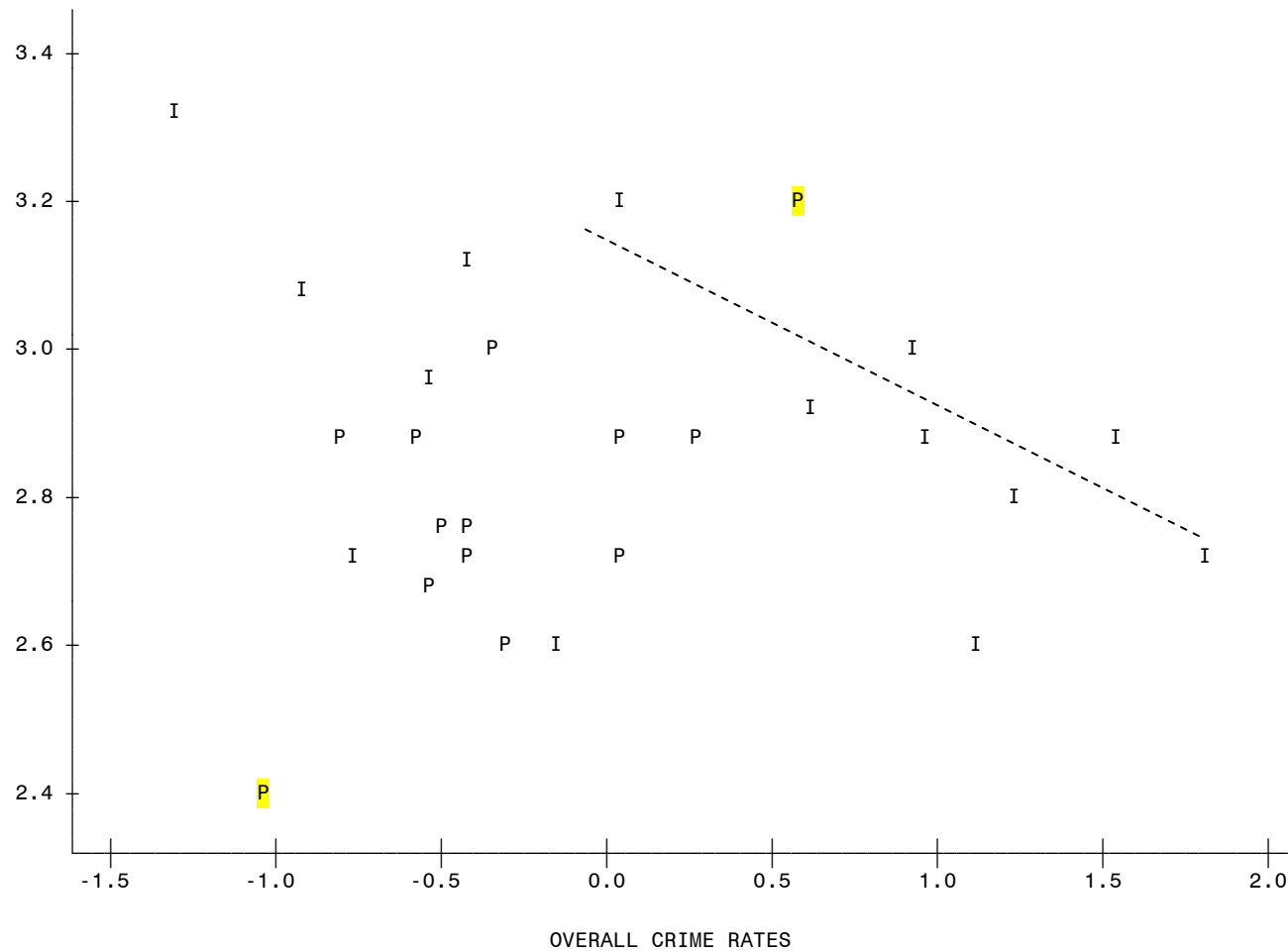
Correlations between collective efficacy measures and various community risks

	Collective Efficacy
Overall Crime Rate	-.05
Rate of Violent Crimes	-.17
Rate of Property Crimes	-.08
Rate of Narcotic Crimes	.12
Substance Availability	-.18
Community Norms	-.39*
District Academic Risk	-.41*
School Problems	-.47*

+ $p < .10$; * $p < .05$; ** $p < .01$

Figure 2

Scatterplot of collective efficacy (Y-axis) by crime (X-axis)



State specific correlation analyses showed a strong negative relationship in Iowa ($r = -.50$) and a strong positive relationship in PA ($r = .64$). Investigation of the scatterplots revealed the PA correlation to be due completely to two extremely influential cases (see Figure 2): the community with the highest crime rate also had the highest rating of collective efficacy, and the community with the lowest crime rate also had the lowest rating of collective efficacy. At this point there is no explanation as to why this difference exists. In looking back to the raw data, it is possible that the lowest crime, lowest collective efficacy community may have had one (out of four) crime jurisdictions that did not report crime incidents as reliably as the other jurisdictions (this jurisdiction has higher clearance rates than incident rates for the months they reported crime data). The correlation between collective efficacy and crime does increase slightly ($r = -.18$) when this community is deleted from the analyses, but it is still not significant.

On the other hand, it is possible that the high crime rate and high ratings of collective efficacy may be more the result of increased police activity due to pressures on local government officials from community members to make the area a safer place, but this type of qualitative historical data does not exist at this point. It is also possible that improvements have been made such that community members are reporting higher levels of collective action, yet that these changes have not yet transferred to low crime rates.⁵

⁵ Another possible explanation is that this step function may be related to the community's geographic context as measured by the locale code of the community (e.g. whether the community was completely rural and isolated, or rural but within proximity of an mid-sized city area, a small town, a large town, or on the fringe of an urban mid-sized city area). In other words, the level of crime at which the moderate negative association between collective efficacy and crime appears, is different in varying geographic contexts, possibly due to systematic differences in the rate of crime in these communities. There were limited statistical tools available to investigate this post-hoc hypothesis given the sample size of 28 communities. In the high crime vs. low crime split samples, the urban fringe ($n=7$) and small town ($n=12$) communities were split between the two groups, whereas the rural areas ($n=4$) were all in the low-crime distribution and the large town ($n=4$) communities were all in the high-crime distribution, and though results from Chi-Squared tests indicate a trend is possible $\chi^2(4, N = 27) = 8.24, p = .08$, they need to be

Creating sub-domains of risks and resources. Additional reliability analyses were conducted along with the above analyses to create domains of risks and resources. Six domains of risk were determined and used in future analyses: community economic risk, crime, substance use atmosphere, school academic risk, and school problems. Community economic risk is an average of the standardized community poverty and district low-income measure ($r = .67$). The three crime measures can also be aggregated into one measure of overall crime ($\alpha = .77$). A substance use risk measure can also be created with the four availability items and the four community norm items (8 items, $\alpha = .81$).

Four domains of resources were determined and used in future analyses: collective efficacy, school proactive, geographic density of youth-serving organizations, and the structured activities factor. Collective efficacy is the average of community attachment and initiative ($r = .60$). The structured activities domain was created in a three step process. First, the sample was rank-ordered on each of the three structured activity variables (perceived availability, student rate of opportunity, and time spent in activities). Second, the top and bottom quarter of the sample was given a score of “1” and “-1”, with the middle 14 communities given zeros on each variable, respectively. Third, any community that was ranked in the top of the distribution on two out of the three variables received a “1” whereas a community that was ranked in the bottom of the distribution on two out of the three variables receives a “-1”. The remaining communities received a “0” on the domain score. Use of this strategy to create a structured activities domain score is supported by correlation matrices that demonstrated

interpreted with caution because of low frequency counts in many cells. This explanation remains possible, but certainly it does not have irrefutable evidence.

the domain score to be equally representative of the three sub-scales ($r = .54$ w/ perceived availability; $r = .69$ w/ student rate of activities; $r = .65$ w/ time spent).

The correlation matrices, which control for state,⁶ of the final risk domains, resource domains, and risks with resources are presented in Tables 8, 9, & 10. Relatively speaking, community resources seem to operate somewhat independently of community risks. Though there are a few moderate negative associations between community risks and resources such as the associations with collective efficacy (as described above) and the structured activities domain with crime rates ($r = -.34, p < .10$), a consistent pattern of small to moderate associations does not exist. Somewhat interestingly, a few community risks relate positively to what would be considered community resources. School proactive has a strong positive association with substance use risk ($r = .49, p < .01$), and the density of youth serving organizations has a moderate to strong association with economic risk ($r = .47, p < .01$), overall crime ($r = -.47, p < .01$) and substance use risk ($r = .54, p < .01$). It is possible that these associations are indicative of community outreach and response to perceived need; there may be more organization-driven outreach in communities that are more impoverished and characterized by favorable norms of adolescent substance use and where substances are readily available to adolescents.

⁶ Correlations controlling for state are presented instead of simple correlations for three reasons. First, there are a few variables that have significant mean differences for the states. Second, there were few changes in relationships when the control for state was added, and when there were changes in relationships they were not changes in direction, but slight changes in magnitude (i.e. a correlation either got slightly stronger or weaker after the control for state was added). Third, controlling for state in these and future analyses enables stronger conclusions to be made about the action of the specific variables in the models; significant relationships can be due to relationships among variables instead of something that is systematically different and unmeasured between the states.

Table 8

Correlations controlling for state among final risk domains

	Economic Risk	Overall Crime	Substance Use Risk	District Academic Risk	School Problems
Economic Risk	1.00				
Overall Crime	.43 [*]	1.00			
Substance Use Risk	.52 ^{**}	.42 [*]	1.00		
District Academic Risk	.74 ^{**}	.32	.14	1.00	
School Problems	.22	.05	.12	.50 ^{**}	1.00

⁺ $p < .10$; ^{*} $p < .05$; ^{**} $p < .01$

Table 9

Correlations controlling for state among final resource domains

	Collective Efficacy	School Proactive	Youth-Serving Organizations	Structured Activities
Collective Efficacy	1.00			
School Proactive	.14	1.00		
Youth-Serving Organizations	-.01	.57**	1.00	
Structured Activities	.28	.24	.12	1.00

⁺ $p < .10$; * $p < .05$; ** $p < .01$

Table 10

Correlations controlling for state between final risk domains and resource domains

	Economic Risk	Overall Crime	Substance Use Risk	Academic Risk	School Problems
Collective Efficacy	-.30	-.18	-.26	-.43 [*]	-.65 ^{**}
School Proactive	.28	.17	.49 ^{**}	.07	-.20
Youth Serving Organizations	.47 ^{**}	.47 ^{**}	.54 ^{**}	.22	-.08
Structured Activities	.10	-.34 ⁺	.23	.02	.04

⁺ $p < .10$; ^{*} $p < .05$; ^{**} $p < .01$

Correlations of risks and resources with broad community context variables. See Table 11 for correlations between risk and resource domains with broader community contextual factors. A few associations deserve mentioning here. As in prior research the rate of crimes related negatively to community ethnicity ($r = -.39, p < .05$) and a positive trend with residential instability ($r = .30, p = .13$). Lastly, both the school proactive and youth serving organization measure had strong associations with population density ($r = .50$; $r = .70$, respectively) indicating more densely populated communities had schools that were more proactive and had a greater density of youth serving organizations.

Table 11

Correlations controlling for state between risk and resource domains with broad community context variables

	Percent White	Residential Instability	Metro Status	Population Density
Economic Risk	-.08	-.15	-.02	.27
Crime Rate	-.39*	.30	-.18	.29
Substance Risk	.19	-.29	.20	.36 ⁺
District Academic Risk	.00	-.17	.18	.24
School Problems	.29	-.02	.54**	-.14
Collective Efficacy	.02	-.06	-.08	-.02
School Proactive	.09	-.43*	.22	.50**
Youth Serving Organizations	-.05	-.13	.15	.70**
Structured Activities	.44*	-.59**	.28	.07

⁺ $p < .10$; * $p < .05$; ** $p < .01$

Specific Aim 2: To understand the relationship between community risks and resources, and community rates of adolescent problem behaviors.

Two-tailed Pearson correlations that controlled for state of all community-level student variables and community-level risks and resources were examined before beginning regression-based hypothesis testing. The approximate intra-class correlations of the student outcomes in the present sample are presented in Table 12, indicating that there is a small but significant amount of between (i.e. community-level) variance. Correlations of community-level student demographic variables and community-level rates of student behaviors are presented in Table 13. A few associations are worth noting. Communities that had a higher percentage of white students had higher rates of alcohol use ($r = .35, p < .10$) and cigarette use ($r = .37, p < .37$), whereas higher rates of aggressive behavior ($r = .43, p < .10$) were associated with more male student survey participants. Additionally, correlations of community-level student variables with community-level risks and resources, and with broad community context variables controlling for state are presented in Tables 14 and 15, respectively.

Table 12

Approximate ICC values of student outcome variables

Variable	Between Variance	Within Variance	ICC
Alcohol Use	0.003531	0.2427	.014
Cigarette Use	0.006416	0.2088	.030
Aggressive Behavior	0.001104	0.2202	.005
Property Damage	0.001133	0.1689	.007
Problem Behavior Index	0.003017	1.7390	.017

Table 13

Correlations controlling for state of all community-level rates of student behaviors and demographic characteristics

	Gender	Dual Parent Households	Student Race	Alcohol Use	Cigarette Use	Aggressive Behavior	Property Damage
Gender	1.00						
Dual Parent Households	-0.13	1.00					
Student Race	0.10	.07	1.00				
Alcohol Use	-0.15	-.06	.35 ⁺	1.00			
Cigarette Use	-0.01	-.43 [*]	.37 ⁺	.56 ^{**}	1.00		
Aggressive Behavior	0.43 [*]	-.38 [*]	-.11	.29	.31	1.00	
Property Damage	0.25	-.28	-.22	.30	.40 [*]	.67 ^{**}	1.00

⁺ $p \leq .10$; ^{*} $p \leq .05$; ^{**} $p \leq .01$

Table 14

Correlations controlling for state of all community-level student variables with community-level risks and resources

	Economic Risk	Overall Crime	Substance Risk	Academic Risk	School Problems	Collective Efficacy	School Proactive	Youth Serving Organizations	Structured Activities
Dual Parent	-.62**	-.39*	-.39*	-.49**	-.31	.28	-.20	-.56**	-.02
Ethnicity	-.01	-.42*	.15	.00	.34 ⁺	.00	.00	-.18	.50**
Alcohol Use	-.04	-.25	-.06	-.06	.23	-.07	-.47**	-.18	.55**
Cigarette Use	.49**	.19	.14	.47**	.49**	-.25	-.26	-.03	.33 ⁺
Aggressive Behavior	.20	.19	-.29	.27	.24	-.25	-.28	.07	-.10
Property Damage	-.01	.33 ⁺	-.30	.15	.28	-.08	-.25	-.05	-.08

⁺ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$

Table 15

Correlations controlling for state of community-level student variables with broad community context variables

	Percent White	Residential Instability	Metropolitan Status	Population Density
Dual Parent	.06	.00	-.27	-.26
Ethnicity	.90**	-.53**	.46**	-.02
Alcohol Use	.22	-.13	-.13	-.32
Cigarette Use	.23	-.10	.16	-.16
Aggressive Behavior	-.21	.22	-.17	-.09
Property Damage	-.32	.35 ⁺	-.05	-.17

⁺ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$

Because initial analyses indicate different associations of community risks and resources to the separate youth outcomes, regression analyses were conducted separately with the community rates of the four outcome behaviors. Additionally, residential instability was included as a risk domain because of possible moderate associations to community rates of adolescent outcomes after controlling for state (Pennsylvania communities are less mobile).

Hypothesis 5. Communities with high levels of risks will have higher rates of youth problem behaviors.

One-tailed community-level direction specific regressions were used to test this hypothesis. Three different types of models were used. First, domain-specific regressions were conducted where each of the four dependent variables were predicted by a model that included state and experimental condition as controls, with each specific risk domain added in separate models (economic risk, overall crime, residential instability, substance use risk, academic risk, school problems). Gender was added as an additional control for the aggressive behavior and property damage models. Second, a squared term was added to the model to test the possibility of curvilinear relationships between the risk domains and behavioral outcomes (i.e. the association between the risk domain and the outcome may be strongest at higher levels of risk, and may weaken at lower levels of risk). A third model that tested for an interaction between each risk domain and experimental condition was also conducted; interactions with experimental condition were added to the original main effect models (i.e. the models without the squared term). Because of the complex interplay of power, sample size, and measurement error in affecting effect size, all squared and interaction terms with a $p \leq .15$ were followed-up

with graphing, and the consistency of the relationships with prior research were considered to assess significance.

This hypothesis was mostly confirmed. Economic risk, residential instability, district academic risk and school problems all predicted the four student rates of behavior considered in these analyses. The results for each dependent variable will now be described in detail.

Predicting rates of alcohol use. See Table 16 for a summary of the significant results. Residential instability had a curvilinear positive association with community-level rates of adolescent alcohol use. Generally, rates of adolescent alcohol use increase as rates of residential instability increase. However, the most pronounced difference is in residentially stable communities; community rates of adolescent alcohol use are lowest in highly residentially stable communities (see Figure 3).

School problems also interacted with experimental condition to predict community rates of adolescent alcohol use. In control communities, the association between school problems and the community-level rates of adolescent alcohol use was positive and strong, indicating that higher levels of school problems related to higher levels of adolescent alcohol use. In contrast, the association between school problems and community-level rates of adolescent alcohol use was zero in intervention communities, indicating that the PROSPER intervention negated the risk of a disorganized and challenged school district (see Figure 4).

Table 16

Significant risk regression models predicting community rates of adolescent alcohol use

	Rates of Alcohol Use		
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Residential Instability			.16
State	-0.0299	0.0361	
Intervention	-0.0128	-0.0128	
Residential Instability	0.0366	0.0378	
Residential Instability Squared	-0.0005 [~]	0.0005	
Model with School Problems			.21
State	-0.0535 ⁺	0.0277	
Intervention	0.2506	0.1990	
School Problems	0.0916 ⁺	0.0532	
Interaction w/ Intervention	-0.1023 ⁺	0.0789	

[~]The residential instability squared model did not meet statistical significance criteria ($p = .158$). However, the effect was graphed out of interest and found to match expectations, and therefore is presented here.

⁺ $p \leq .15$; ^{*} $p \leq .10$; ^{*} $p \leq .05$

Figure 3

The nonlinear association between residential instability and community-level rates of adolescent alcohol use

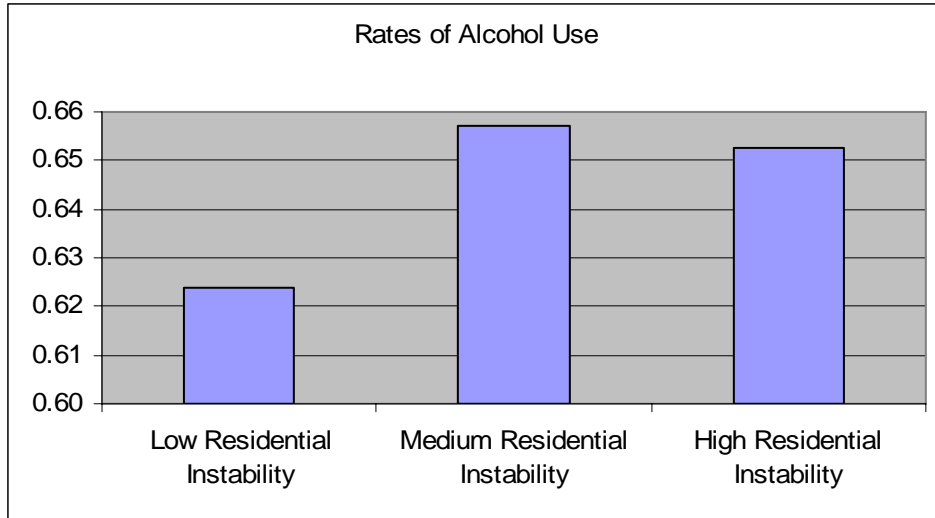


Figure 3. The expected community rates of adolescent alcohol use at varying levels of residential instability: “Low” residential instability represents the expected value at one standard deviation below the mean; “Medium” residential instability represents the expected value at the mean; “High” residential instability represents the expected value at one standard deviation above the mean.

Figure 4

Interaction between school problems and experimental condition in predicting community-level rates of adolescent alcohol use

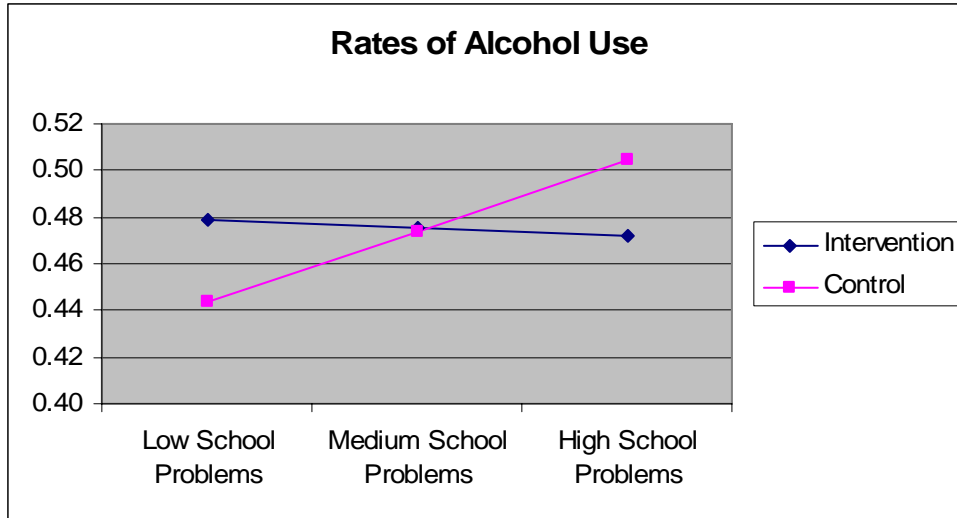


Figure 4. The expected community rates of adolescent alcohol use at varying levels of school problems for intervention and control communities. “Low” school problems represents the expected value at one standard deviation below the mean; “Medium” school problems represents the expected value at the mean; “High” school problems represents the expected value at one standard deviation above the mean.

Predicting rates of cigarette smoking. See Table 17 for a summary of the significant results. District academic risk had a strong positive curvilinear association with community-level rates of adolescent cigarette smoking. Generally, community rates of adolescent cigarette use increase as levels of district academic risk increase. However, the most pronounced difference is in low academic risk communities; rates of cigarette use are the lowest in low academic risk communities (see Figure 5).

Economic risk had a significant positive main effect and interacted with experimental condition to predict community rates of adolescent cigarette use. The positive association between economic risk and community-level rates of adolescent cigarette smoking was weaker in intervention communities than in control communities, indicating that the PROSPER intervention protected low income communities from high rates of adolescent cigarette smoking (see Figure 6).

School problems also had a significant positive main effect and interacted with experimental condition to predict community rates of adolescent cigarette use. Similar to economic risk, the positive association between school problems and community-level rates of adolescent cigarette smoking was weaker in intervention communities than in control communities, indicating that the PROSPER intervention protected overwhelmed school districts from high rates of adolescent cigarette smoking (see Figure 7).

Table 17

Significant risk regression models predicting community rates of adolescent cigarette smoking

Rates of Cigarette Use			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Academic Risk			.44
State	-0.0851 [*]	0.0287	
Intervention	-0.0301	0.0289	
Academic Risk	0.0315 ⁺	0.0187	
Academic Risk Squared	-0.0013 [^]	0.0012	
Model with Economic Risk			.44
State	-0.1012 [*]	0.0292	
Intervention	-0.0191	0.0293	
Economic Risk	0.0794 [*]	0.0283	
Interaction w/ Intervention	-0.0464 [^]	-0.0361	
Model with School Problems			.48
State	-0.1088 [*]	0.0292	
Intervention	0.3215	0.2096	
School Problems	0.1908 [*]	0.0560	
Interaction w/ Intervention	-0.1403 [*]	0.0830	

[^] *p* <= .15; ⁺ *p* <= .10; * *p* <= .05

Figure 5

Rates of adolescent cigarette smoking predicted by district academic risk squared

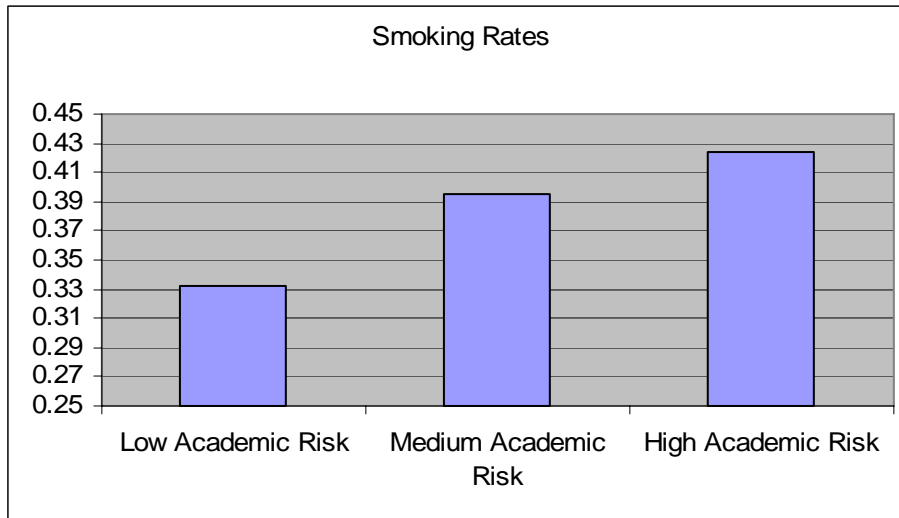


Figure 5. The expected community rates of adolescent cigarette use at varying levels of district academic risk: “Low” academic risk represents the expected value at one standard deviation below the mean; “Medium” academic risk represents the expected value at the mean; “High” academic risk represents the expected value at one standard deviation above the mean.

Figure 6

Community-level rates of adolescent cigarette smoking predicted by economic risk and an interaction with intervention

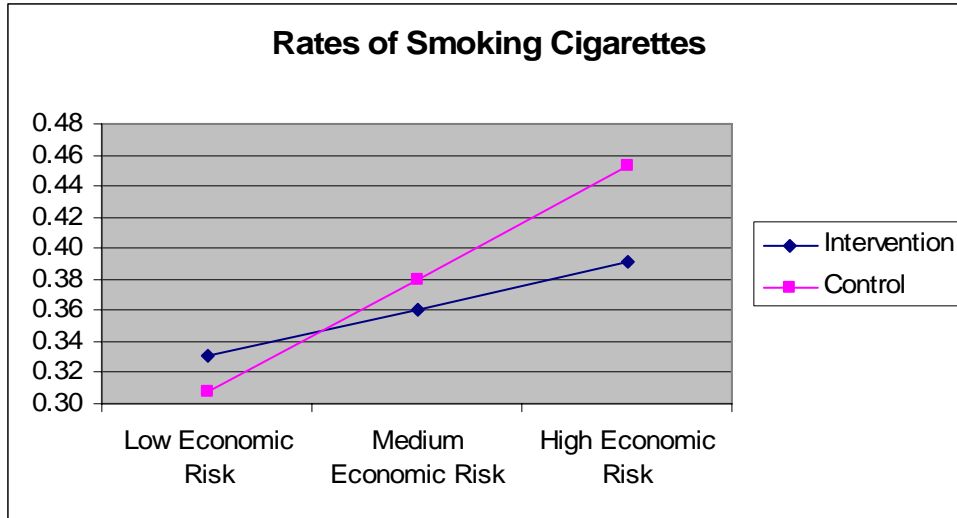


Figure 6. The expected community rates of adolescent cigarette use at varying levels of economic risk for intervention and control communities. “Low” economic risk represents the expected value at one standard deviation below the mean; “Medium” economic risk represents the expected value at the mean; “High” economic risk represents the expected value at one standard deviation above the mean.

Figure 7

Rates of cigarette smoking predicted by school problems and an interaction with experimental condition

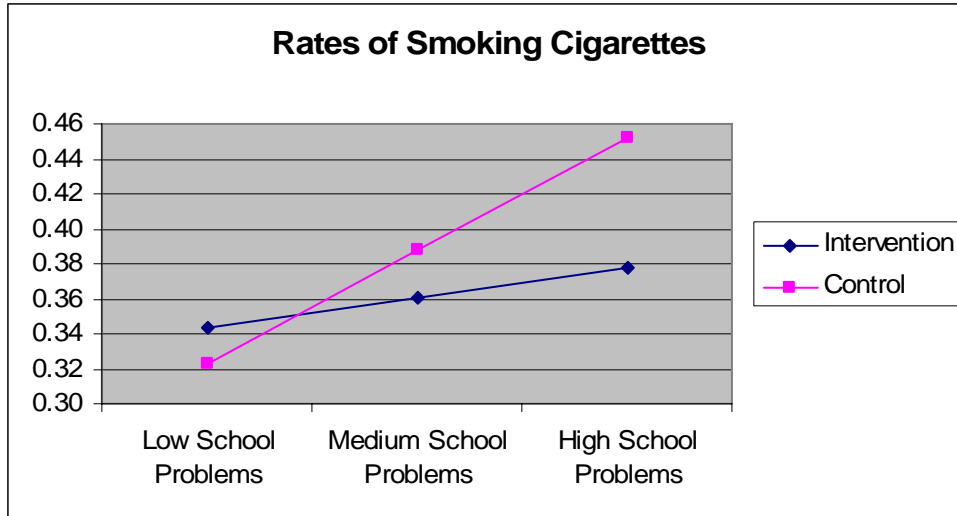


Figure 7. The expected community rates of adolescent cigarette use at varying levels of school problems for intervention and control communities. “Low” school problems represents the expected value at one standard deviation below the mean; “Medium” school problems represents the expected value at the mean; “High” school problems represents the expected value at one standard deviation above the mean.

Predicting rates of aggressive behavior. See Table 18 for a summary of the significant results. Residential instability had a strong positive association with rates of aggressive behavior; communities with more mobile populations had higher levels of aggressive behavior ($\beta = .37, p < .10$).

In addition to the main effect for residential instability, a strong curvilinear association was found between school problems and rates of aggressive behavior. Generally, rates of adolescent aggressive behavior increase as the level of school problems increases. However, the most pronounced difference is in high school problem communities; rates of aggressive behavior are the highest in communities that have high levels of school problems (see Figure 8).

Table 18

Significant risk regression models predicting community rates of adolescent aggressive behavior

Rates of Aggressive Behavior			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Residential Instability			.39
State	-0.0511 ⁺	0.0223	
Intervention	0.0110	0.0174	
Gender	0.6276 ⁺	0.2668	
Residential Instability	0.0031 ⁺	0.0019	
Model with School Problems			.39
State	-0.0511 ⁺	0.0223	
Intervention	0.0110	0.0174	
Gender	0.6276 ⁺	0.2668	
School Problems	0.0031 ⁺	0.0019	
School Problems Squared	0.1033 ⁺	0.0594	

[^] *p* <= .15; ⁺ *p* <= .10; ^{*} *p* <= .05

Figure 8

Rates of aggressive behaviors predicted by school problems squared

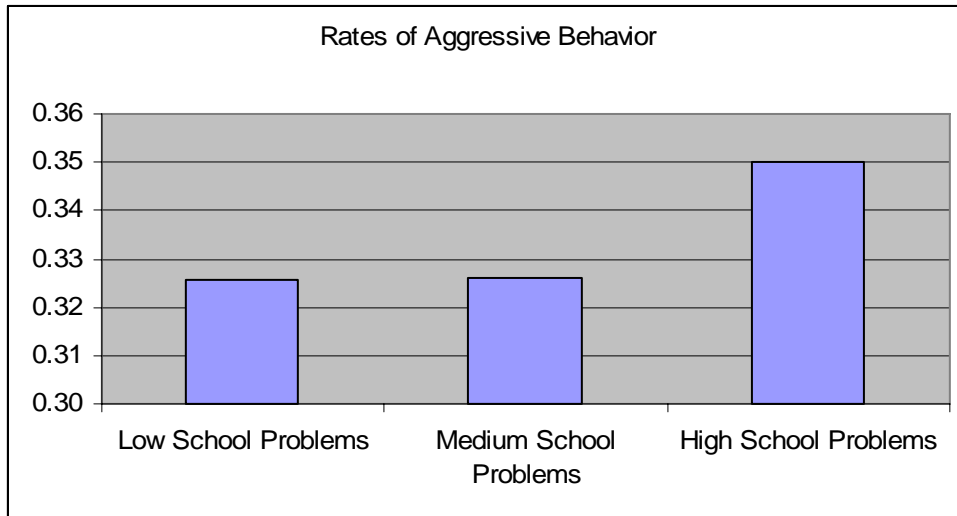


Figure 8. The expected community rates of adolescent aggressive behavior at varying levels of school problems: “Low” school problems represents the expected value at one standard deviation below the mean; “Medium” school problems represents the expected value at the mean; “High” school problem represents the expected value at one standard deviation above the mean.

Predicting rates of property damage. See Table 19 for a summary of the significant results. Crime had a significant positive association with property damage ($\beta = .31, p < .10$); community rates of adolescent destruction of property increase as the level of crime increases. Residential instability also had a significant positive association with rates of property damage ($\beta = .49, p < .05$). Rates of property destruction increase as levels of residential instability increase.

School problems had a significant curvilinear association with rates of property destruction. Generally, rates of adolescent property destruction increase as the level of school problems increases. However, the most pronounced difference is in communities with high levels of school problems; rates of adolescent property destruction are the highest in communities with high levels of school problems (see Figure 9).

Economic risk interacted with intervention to predict community rates of adolescent property destruction. Rates of property destruction were lower in intervention communities that had high levels of economic risk than they were in similar control communities, indicating that the PROSPER intervention protected low income communities from experiencing high rates of adolescent property destruction (see Figure 10).

District academic risk also interacted with experimental condition to predict community rates of property destruction. Rates of property destruction were lower in intervention communities that had high levels of academic risk than they were in similar control communities, indicating that the PROSPER intervention protected high academic risk communities from experiencing high rates of adolescent property destruction (see Figure 11).

Table 19

Significant risk regression models predicting community rates of adolescent destruction of property

Rates of Destroying Property			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Overall Crime			.31
State	-0.0554 [*]	0.0218	
Intervention	0.0095	0.0210	
Gender	0.1330	0.3273	
Crime	0.0196 ⁺	0.0139	
Model with Residential Instability			.39
State	-0.0713 [*]	0.0225	
Intervention	-0.0045	0.0176	
Gender	-0.4643 [*]	0.2695	
Residential Instability	0.0041 [*]	0.0019	
Model with School Problems			.36
State	-0.0440 [*]	0.0199	
Intervention	-0.0027	0.0185	
Gender	0.3281	0.2769	
School Problems	-0.3562	0.3111	
School Problems Squared	0.0804 [^]	0.0633	
Model with Economic Risk			.33
State	-0.0473 [*]	0.0200	
Intervention	0.0009	0.0190	
Gender	0.2204	0.3056	
Economic Risk	0.0236	0.0212	
Interaction w/ Intervention	-0.0345 ⁺	0.0241	
Model with Academic Risk			.37
State	-0.0444 [*]	0.0183	
Intervention	0.0733	0.0424	
Gender	0.1903	0.2969	
Academic Risk	0.0063 [*]	0.0038	
Interaction w/ Intervention	-0.0096 [*]	0.0050	

[^] *p* <= .15; ⁺ *p* <= .10; ^{*} *p* <= .05

Figure 9

Rates of property destruction predicted by school problems squared

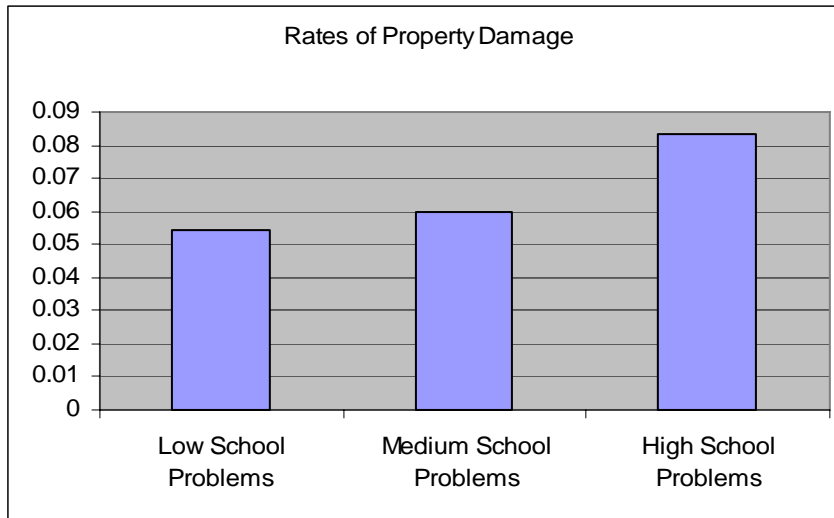


Figure 9. The expected community rates of adolescent destruction of property at varying levels of school problems: “Low” school problems represents the expected value at one standard deviation below the mean; “Medium” school problems represents the expected value at the mean; “High” school problem represents the expected value at one standard deviation above the mean.

Figure 10

Rates of property destruction predicted by an interaction between economic risk and experimental condition

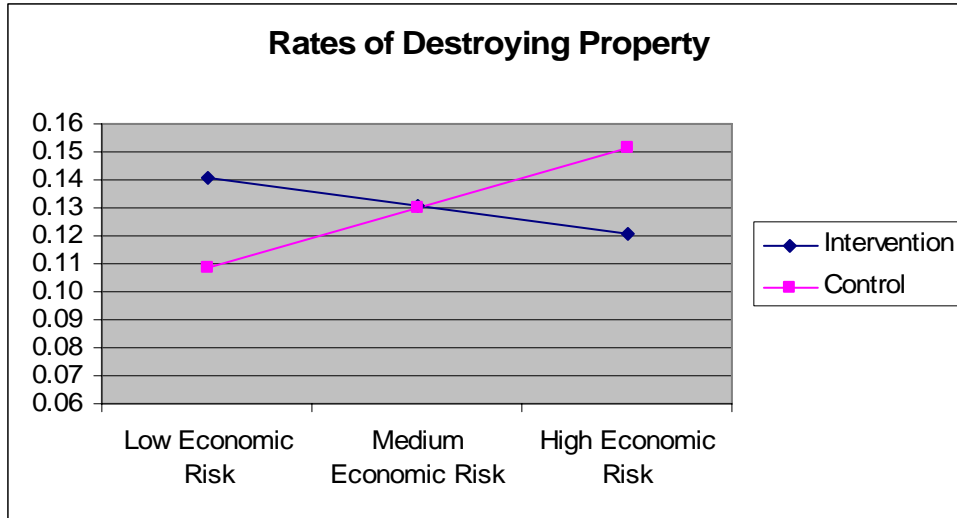


Figure 10. The expected community rates of adolescent property destruction at varying levels of economic risk for intervention and control communities. “Low” economic risk represents the expected value at one standard deviation below the mean; “Medium” economic risk represents the expected value at the mean; “High” economic risk represents the expected value at one standard deviation above the mean.

Figure 11

Rates of property destruction predicted by an interaction between district academic risk and experimental condition

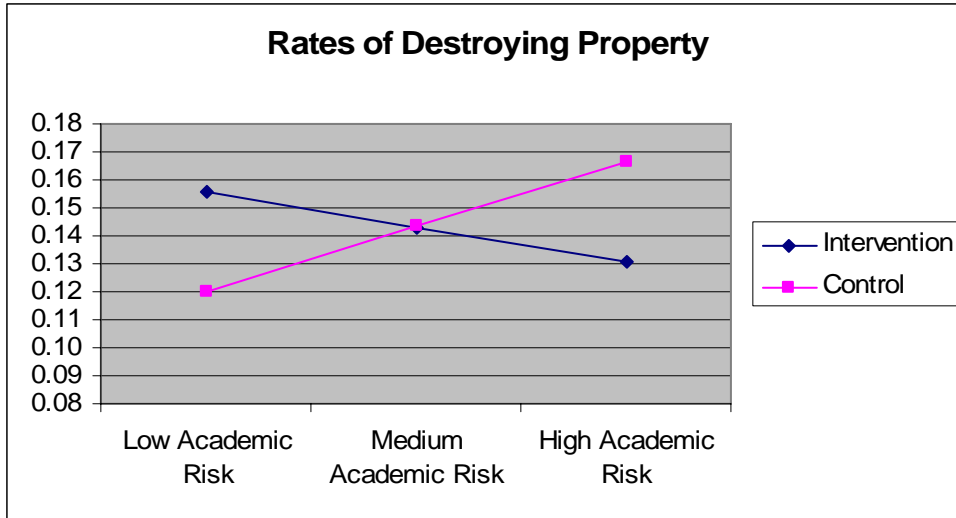


Figure 11. The expected community rates of adolescent property destruction at varying levels of district academic risk for intervention and control communities. “Low” academic risk represents the expected value at one standard deviation below the mean; “Medium” academic risk represents the expected value at the mean; “High” academic risk represents the expected value at one standard deviation above the mean.

Risk summary. Community economic risk, residential instability, district academic risk and school problems all consistently related to community rates of problem behaviors. In addition to the main and squared effects, the relation that economic risk and school problems had with alcohol use, cigarette smoking, and property damage were impacted by community participation in the PROSPER intervention.

Hypothesis 6. Communities with high levels of resources will have lower rates of youth problem behaviors.

One-tailed community-level direction specific regressions were used to test this hypothesis. The three models summarized in hypothesis 5 are utilized, and the specific resource domains added in this section include collective efficacy, school proactive, the density of youth serving organizations, and the structured activity factor.

This hypothesis received mixed support. Collective efficacy and school problems were relatively consistent predictors of community rates of the adolescent problem behaviors considered in these analyses. The results for each dependent variable are described below.

Predicting rates of alcohol use. See Table 20 for a summary of the significant results. The density of youth serving organizations had a significant curvilinear relationship with community rates of adolescent alcohol use. Generally, community rates of adolescent alcohol use decrease as the density of youth serving organizations increases. However, the most pronounced difference is at the low end of youth serving organizations; the rate of adolescent alcohol use is the highest in communities with a low density of youth serving organizations (see Figure 12).

Table 20

Significant resource regression models predicting community rates of adolescent alcohol use

	Rates of Alcohol Use		
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Youth Serving Organizations			.22
State	-0.0451 ⁺	0.0278	
Intervention	-0.0087	0.0263	
Youth Serving Organizations	-0.6408 [*]	0.3426	
Youth Serving Organizations Squared	1.1791 [*]	0.7057	
Model with School Proactive			.45
State	-0.0557 [*]	0.0220	
Intervention	-0.6669 [*]	0.2633	
School Proactive	-0.2094 [*]	0.0544	
Interaction w/ Intervention	0.2104 [*]	0.0832	

[^] *p* <= .15; ^{*} *p* <= .10; ^{*} *p* <= .05

Figure 12

Rates of adolescent alcohol use by geographic density of youth serving organizations squared

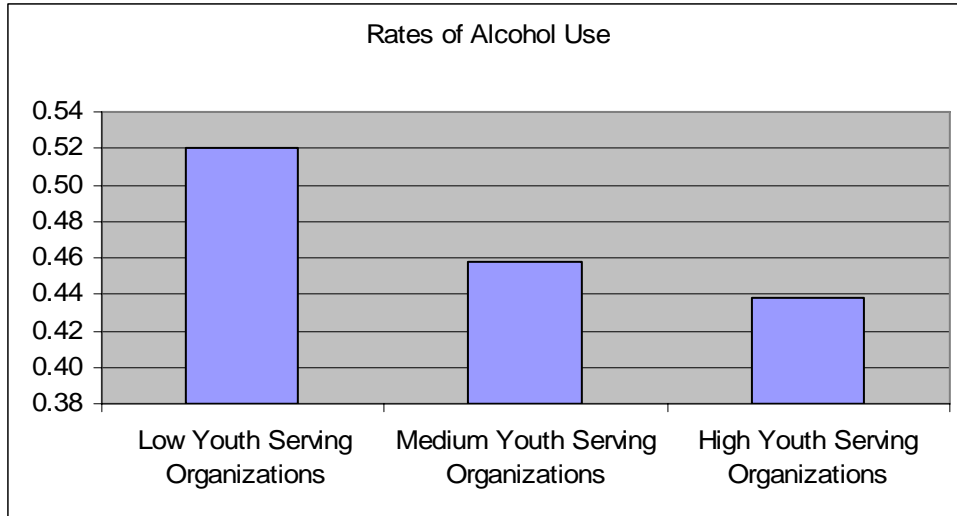


Figure 12. The expected community rates of adolescent alcohol use at varying levels of the density of youth serving organizations: “Low” youth serving organizations represents the expected value at one standard deviation below the mean; “Medium” youth serving organizations represents the expected value at the mean; “High” youth serving organizations represents the expected value at one standard deviation above the mean.

School proactive interacted with experimental condition to predict community rates of adolescent alcohol use. In control communities, the association between school proactive and rates of adolescent alcohol use is moderate and negative; fewer adolescents use alcohol in districts that have a proactive leadership that reaches out to families. In contrast, the association between school proactive and community-level rates of adolescent alcohol use was zero in intervention communities, indicating that the PROSPER intervention, in a sense, protected communities with weaker leadership from experiencing high rates of adolescent alcohol use (see Figure 13).

Figure 13

Rates of adolescent alcohol use predicted by an interaction between school proactive and experimental condition

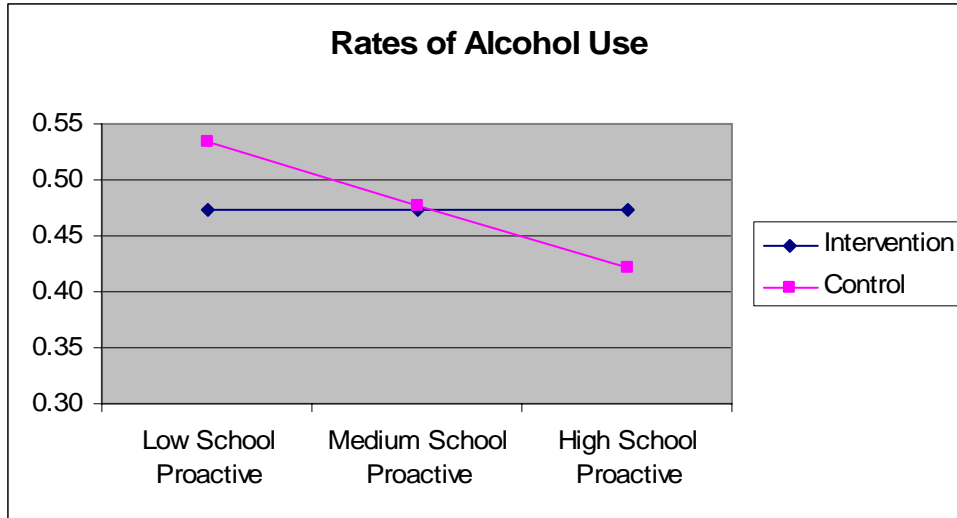


Figure 13. The expected community rates of adolescent alcohol use at varying levels of school proactive for intervention and control communities. “Low” school proactive represents the expected value at one standard deviation below the mean; “Medium” school proactive represents the expected value at the mean; “High” school proactive represents the expected value at one standard deviation above the mean.

Predicting rates of cigarette smoking. See Table 21 for a summary of the significant results. Collective efficacy ($\beta = -.25, p < .10$) and school proactive ($\beta = -.24, p < .10$) both had negative moderate relationships with community rates of adolescent cigarette smoking. Rates of cigarette smoking were higher in communities that had low levels of collective efficacy and school proactive, and they were low in communities that had high levels of these variables.

Table 21

Significant resource regression models predicting community rates of adolescent cigarette use

	Rates of Cigarette Use		
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Collective Efficacy			.27
State	-0.0673 [*]	0.0338	
Intervention	-0.0228	0.0321	
Collective Efficacy	-0.1053 ⁺	0.0796	
Model with School Proactive			.27
State	-0.0904 [*]	0.0325	
Intervention	-0.0198	0.0319	
School Proactive	-0.0823 ⁺	0.0618	

[^] $p \leq .15$; ⁺ $p \leq .10$; $p \leq .05$

Predicting rates of aggressive behavior. See Table 22 for a summary of the significant results. Collective efficacy and school proactive both had significant curvilinear associations with community rates of adolescent aggressive behavior. Generally, community rates of adolescent aggressive behavior decrease as levels of collective efficacy and school proactive increase. However, the most pronounced difference is in high collective efficacy and high school proactive communities; rates of aggressive behavior are lowest in communities with high levels of collective efficacy and high levels of school proactive (see Figures 14 and 15).

Table 22

Significant resource regression models predicting community rates of adolescent aggressive behavior

Rates of Aggressive Behavior			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Collective Efficacy			.41
State	-0.0212	0.0185	
Intervention	0.0099	0.0177	
Gender	0.5144 [*]	0.2653	
Collective Efficacy	1.0221	0.8380	
Collective Efficacy Squared	-0.1871 [^]	0.1456	
Model with School Proactive			.54
State	-0.0586 [*]	0.0197	
Intervention	0.0077	0.0155	
Gender	0.4701 [*]	0.2634	
School Proactive	1.5057 [*]	0.7193	
School Proactive Squared	-0.2505 [*]	0.1141	

[^] *p* <= .15; ^{*} *p* <= .10; ^{*} *p* <= .05

Figure 14

Rates of adolescent aggressive behavior by collective efficacy squared

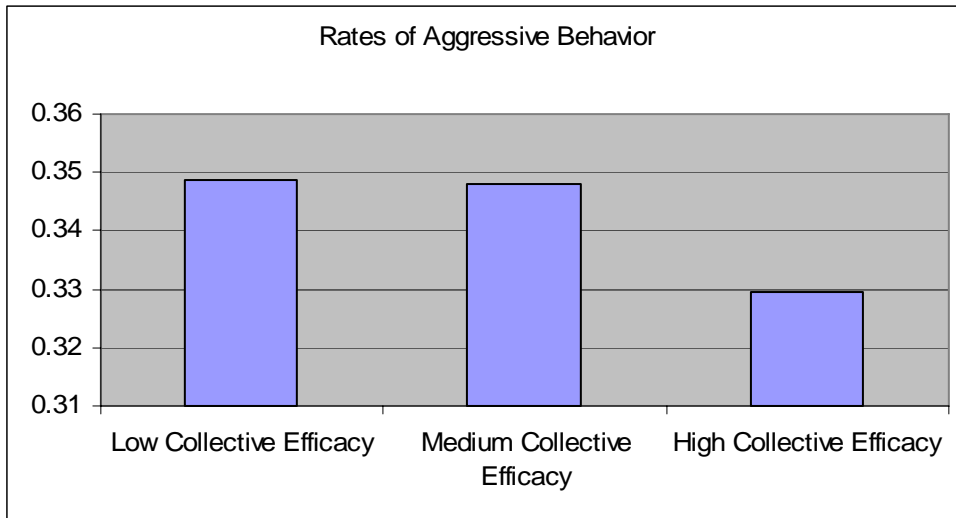


Figure 14. The expected community rates of adolescent aggressive behavior at varying levels of collective efficacy: “Low” collective efficacy represents the expected value at one standard deviation below the mean; “Medium” collective efficacy represents the expected value at the mean; “High” collective efficacy represents the expected value at one standard deviation above the mean.

Figure 15

Rates of adolescent aggressive behavior by school proactive squared

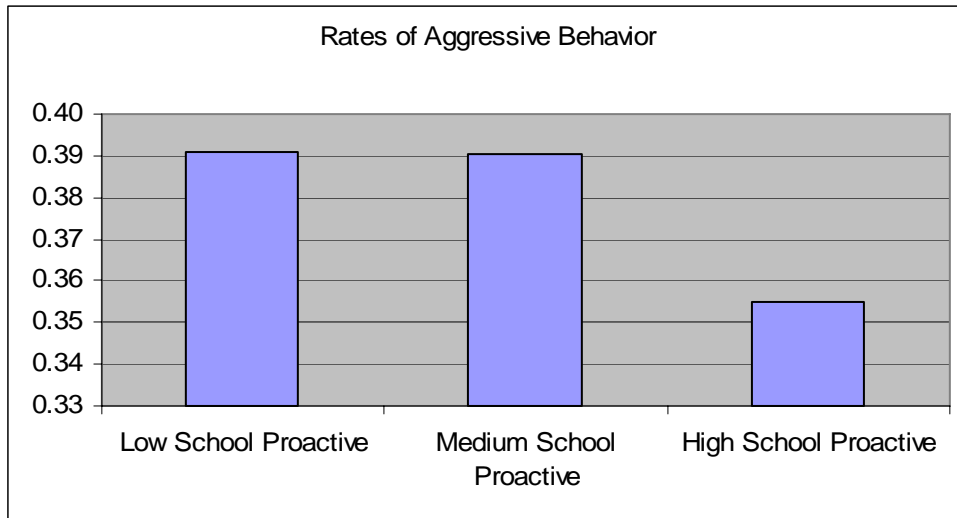


Figure 15. The expected community rates of adolescent aggressive behavior at varying levels of school proactive: “Low” school proactive represents the expected value at one standard deviation below the mean; “Medium” school proactive represents the expected value at the mean; “High” school proactive represents the expected value at one standard deviation above the mean.

Predicting rates of property destruction. See Table 23 for a summary of the significant results. School proactive had a significant curvilinear association with community rates of adolescent property destruction. Generally, as levels of school proactive increase, community rates of adolescent property destruction decrease. However, the most pronounced difference is in high school proactive communities; rates of property destruction are the lowest in communities with high levels of school proactive (see Figure 16).

Resource summary. School proactive and collective efficacy were consistently related to community rates of problem behaviors. The geographic density of youth serving organizations was also significant in predicting rates of adolescent alcohol use. Main and squared effects were the most common, however, in one instance the effect of a community-level resource was shown to be related to experimental condition: low levels of school proactive did not predict high rates of adolescent alcohol use in intervention communities, as it did in control communities.

Table 23

Significant resource regression model predicting community rates of adolescent property destruction

Rates of Destroying Property			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with School Proactive			.48
State	-0.0748 [*]	0.0211	
Intervention	-0.0064	0.0167	
Gender	0.2124	0.2832	
School Proactive	1.7745 [*]	0.7735	
School Proactive Squared	-0.2913 [*]	0.1227	

[^] *p* <= .15; ^{*} *p* <= .10; ^{*} *p* <= .05

Figure 16

Rates of adolescent destruction of property by school proactive squared

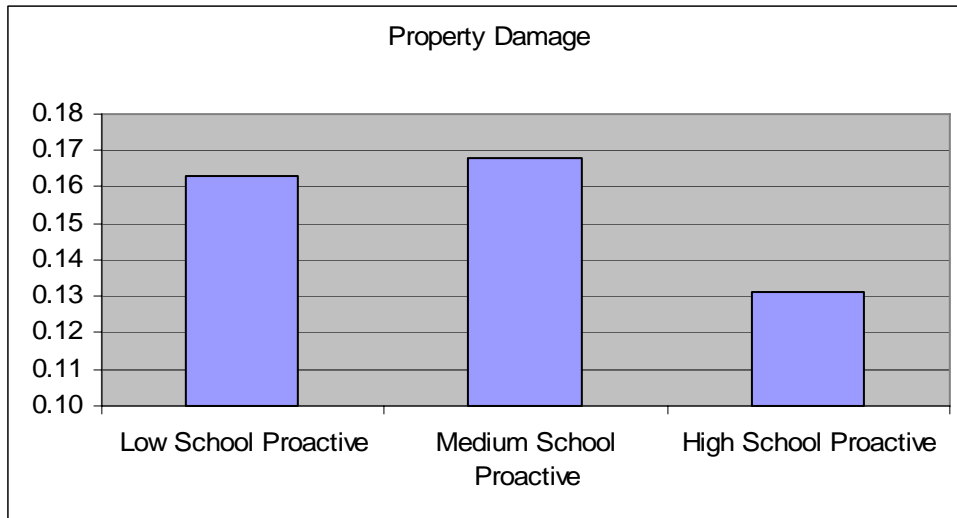


Figure 16. The expected community rates of adolescent destruction of property at varying levels of school proactive: “Low” school proactive represents the expected value at one standard deviation below the mean; “Medium” school proactive represents the expected value at the mean; “High” school proactive represents the expected value at one standard deviation above the mean.

Hypothesis 7. The availability of transportation will interact with community opportunities for participation in structured activities: the protective relationship between community recreation opportunities and youth problem behaviors will be stronger when there is available transportation after school to assist with access.

One-tailed community-level direction specific regressions were used to test this hypothesis. All models included the appropriate controls, as well as the main effect of the structured activity factor and the availability of bus transportation home after school activities, in addition to the interaction of the variables. This hypothesis received some support; results are described below.

Interactions with transportation results. The interaction between transportation and recreation opportunities was significant in predicting one out of the four dependent variables. See Table 24 and Figure 17 for a depiction of the results. Rates of aggressive behavior were the lowest in communities that had a high level of recreation opportunities and that provided school bus transportation home after organized school activities. On the contrary, rates of aggressive behavior were high in communities that had a high level of recreation opportunities but did not provide transportation home from these activities.

Table 24

Models predicting community rates of adolescent aggressive behavior with interactions between structured activity opportunities and the availability of transportation

Rates of Aggressive Behavior			
	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model with Structured Activities x Transportation			.39
State	-0.0349 [*]	0.0204	
Intervention	0.0054	0.0200	
Gender	0.6140 [*]	0.2812	
Transportation Home	-0.0179	0.0202	
Structured Activities	0.0194	0.0252	
Structured Activities x Transportation	-0.0387 [^]	0.0323	

[^] *p* <= .15; ^{*} *p* <= .10; ^{*} *p* <= .05

Figure 17

Community rates of adolescent aggressive behavior predicted by an interaction between recreation opportunities and transportation

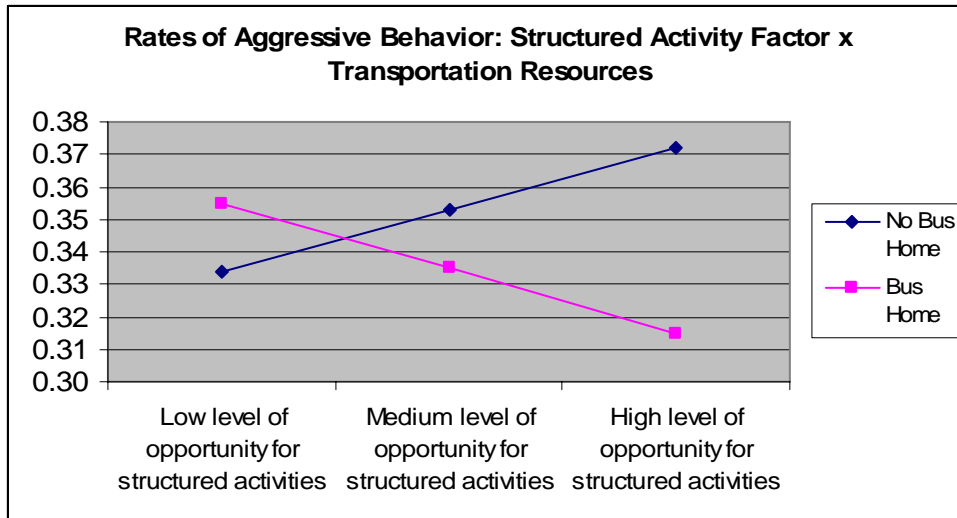


Figure 17. The expected community rates of adolescent aggressive behavior at the three levels of the structured activity factor for communities that provided busses home after school activities and for those that did not provide bus service home after school activities. “Low” opportunity represents the expected value at the lowest value on the structured activity factor (-1). “Medium” opportunity represents the expected value at the middle value of the structured activity factor (0). “High” opportunity represents the expected value at the high value of the structured activity factor (1).

Hypothesis 8. The rates of risks and the rate of resources will interact:

Community rates of youth problems will be lower in high risk communities when the rate of resources is also high.

In order to test this hypothesis, aggregated risk and aggregated resource variables needed to be constructed. Because different risks and resources had different relations with the four dependent variables, all domains were included in constructing these variables.

Before creating the aggregated measures, cut points needed to be determined for levels of “risk” and levels of “resource” such that if a community’s value on that variable fell below the cut-point, they would receive a “0” and if they fell above it, they would receive a “1.” Three different cut-points were considered: one standard deviation above the mean, the top third of the sample, and using a median split. Cut-points were chosen at one standard deviation above the sample mean for statistical and theoretical reasons. First, scatterplots and stem and leaf plots of all risks and resources were examined for natural cut-points within the distributions. Often, the natural cut-points were very close to the standard deviation cut-points. Second, as this community sample is not a “high risk” sample (relatively low levels of poverty, residential instability, and crime rates compared to national rates – see Appendix E for more specific information), splitting the sample at one standard deviation above the mean ensures that communities with more extreme levels are highlighted as having risk or resources. Third, using the standard deviation cut point results in more substantial cell sizes, which will generate more reliable estimates of the main effects of risks, main effects of resources, and the interaction between the two.

One additional modification was made in order to compute the aggregated risk variable: the district academic risk and school problems variables were considered together as one domain of “school risk.” Though these measures describe different aspects of the school context, they are related and they do describe one “domain” of the community context. Combining these measures for these analyses ensured every risk and resource domain was given equal weight in the measures.

Risk x resource interactions. This hypothesis received some support. See Table 25 and Figure 18 for a depiction of the results. A main effect of accumulated risks was found for rates of cigarette smoking; communities with more risks had higher rates of adolescent cigarette smoking. A main effect of resources was found for rates of aggressive behavior; communities with more resources had lower rates of aggressive behavior. Only one significant interaction between accumulated risks and accumulated resources was found in predicting rates of the destruction of property. Communities with more risks had lower rates of property damage when they also had more resources. In addition, risk level did not matter as much to low resource communities; low resource communities had high rates of property damage regardless of risk level. There were no risk or resource impacts on community rates of adolescent alcohol use.

Table 25

Regression results depicting accumulated risk and accumulated resource models

	<i>B</i>	<i>SE B</i>	<i>R</i> ²
Model Predicting Cigarette Smoking Rates			.28
State	-0.0965 [*]	0.0355	
Intervention	-0.0208	0.0326	
Accumulated Risks	0.0228 ⁺	0.0155	
Accumulated Resources	0.0038	0.0210	
Model Predicting Rates of Aggressive Behavior			.38
State	-0.0384 [*]	0.0199	
Intervention	0.0092	0.0181	
Gender	0.5411	0.2827	
Accumulated Risks	0.0036	0.0086	
Accumulated Resources	-0.1612 ⁺	0.0111	
Model Predicting Rates of Destruction of Property			.43
State	-0.0706 [*]	0.0225	
Intervention	0.0086	0.0196	
Gender	0.2169	0.2912	
Accumulated Risks	0.0140 ⁺	0.0105	
Accumulated Resources	0.0032	0.0155	
Risk Level x Resource Level	-0.0247 [*]	0.0131	

[^] *p* <= .15; ⁺ *p* <= .10; * *p* <= .05

Figure 18

Community rates of adolescent destruction of property predicted by an interaction between the level of risks and the level of resources

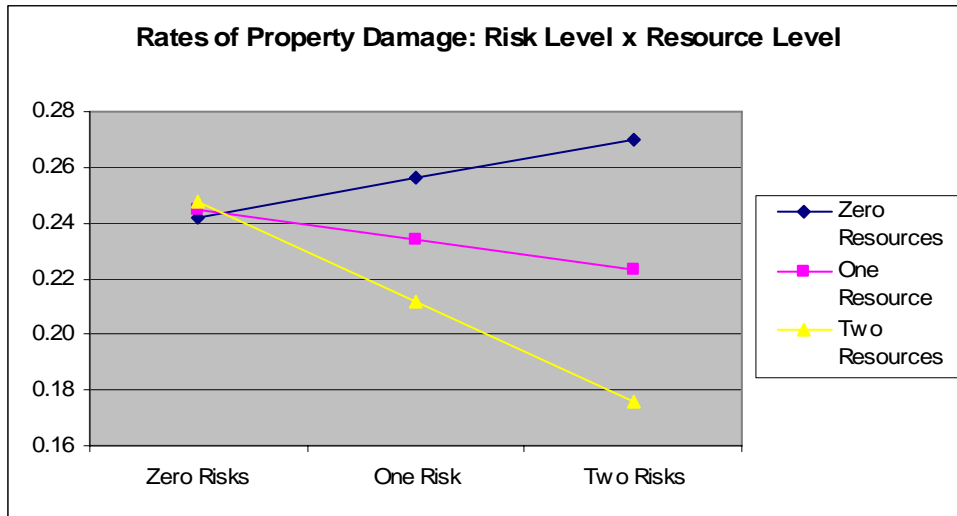


Figure 18. The expected community rates of adolescent property destruction as predicted by the interaction between the accumulated risk and accumulated resource measures.

Specific Aim 3: The third aim of the present study is to understand how individual youth's proximal experience of various community-level risks and resources relate to their individual problem behaviors.

Preliminary analyses. Because of the large individual-level sample, precautions were taken in order to protect against interpreting associations found significant by chance. Minimum significance criteria was set so that 2-tailed tests of $p < .001$ are interpreted as significant.

Descriptive statistics of individual-level student demographic and outcome variables are presented in Table 26. The individual-level student sample is approximately 14.3 years old ($SD = 0.43$), 50.5% female, majority white (85.4%), and lives with two parents (77.0%). By the spring of their 8th grade year, approximately 43% of the students have drunk more than a few sips of alcohol, 31% have smoked a cigarette, 33% have been in a fight, and 22% have purposely destroyed someone else's property. Altogether, the average student has participated in 1.3 of those four behaviors. The individual-level problem behavior index meets acceptable levels of reliability ($\alpha = .69$), and it fits well Problem Behavior Theory models (Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988), hence, it is a conceptually strong factor to use in analyses. See Table 27 for correlations among the student outcome behaviors and correlations of student outcomes with student demographics.

Table 26

Descriptive statistics for the individual-level student sample

<i>Scale</i>	<i>N</i>	<i>Percent</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Individual Experience of Community Factors						
Alcohol Outlets within 1 mile	5003		10.50	10.41	0.00	52.00
Tobacco Outlets within 1 mile	5003		6.50	6.42	0.00	33.00
Youth Organizations within 1 mile	5003		1.83	2.60	0.00	18.00
Crime Jurisdiction Areas	68					
Violent Crime Rate	68		238.90	265.57	0.00	1154.80
Property Crime Rate	68		2161.84	2002.50	0.00	12785.26
Narcotic Crime Rate	68		266.45	215.60	0.00	1190.92
Individual-level Student Demographics						
Gender	5003					
Male	2477	49.5%				
Female	2526	50.5%				
Dual Parent Households	4901					
Single Parent Headed Household	1129	23.0%				
Dual Parent Household	3772	77.0%				
Age	4975		14.30	0.43	12.50	16.30
Ethnicity	4685					
Non-White	685	14.6%				
White	4000	85.4%				
Low Income Status	4729					
Other (0)	3452	73.0%				
Free or reduced lunch (1)	1277	27.0%				
Individual-level Student Outcomes						
Problem Behavior Index	5003		1.29	1.33	0.00	4.00
None	1973	39.4%				
One	1089	21.8%				
Two	903	18.0%				
Three	603	12.1%				
Four	435	8.7%				
Specific Risk Behaviors						
Drunk Alcohol	5003	43.8%				
Smoked a Cigarette	5003	30.7%				
Aggressive Behavior	5003	32.9%				
Destroyed Property	5003	21.5%				

Table 27

Correlations between student demographic variables and student outcomes

	Alcohol Use	Smoke Cigarette	Aggressive Behavior	Destroy Property	Problem Behavior Index
Alcohol Use	1.00				
Smoke Cigarette	.49***	1.00			
Aggressive Behavior	.31***	.30***	1.00		
Destroy Property	.31***	.29***	.45***	1.00	
Gender	.02	-.03	.19***	.10***	.10***
Age	.07***	.10***	.09***	.04	.11***
Ethnicity	.03	.02	-.07***	-.01	-.01
Low Income	.01	.14***	.09***	.03	.09***
Dual-parent Household	-.08***	-.14***	-.07***	-.07***	-.12***

*** $p < .001$

Additional new variables used in this section describe the individual's proximal experience of the community context. Each student receives a unique value based on where the student lives. The specific variables in question are the number of alcohol outlets within a 1 mile radius of the students home, the number of tobacco outlets within a 1 mile radius of the students home, the number of youth serving organizations within a 1 mile radius of the students home, and the overall crime of the crime jurisdiction within which the students' live.

A one-mile radius was chosen as the radial distance for several theoretical and empirical reasons. First, a one-mile radius is a sufficient distance for student to get out of their immediate neighborhood, yet it is a distance that is likely to be traveled frequently. As well, it is likely that students travel within this radius on their own by walking, by riding bicycles, or even by using public transportation. Third, this one mile radius is similar to the one kilometer radius used in similar research (Chuang et al., 2005; Kruger et al., 2005; Mason et al., 2004). Lastly, this distance demonstrated a significant amount of between variance (i.e. approximately 20% of the variance in the variables were considered to be due to the specific community within which each student lives), yet the majority of the variance was still attributed to the within factor (i.e. student specific). See Table 28 for the ICCs for the individual-level community context variables.

Table 28

Intraclass correlations for individual community context variables

Variable	Between Variance	Within Variance	ICC
Number of Alcohol Outlets within 1 mile	28.37	74.06	.28
Number of Tobacco Outlets within 1 mile	9.54	32.39	.23
Number of Youth Serving Organizations within 1 Mile	1.17	5.70	.17

On average, there are 10.50 ($SD = 10.41$) alcohol outlets and 6.50 ($SD = 6.42$) tobacco outlets, and 1.83 ($SD = 2.60$) youth serving organizations within a one mile radius of each students' home. Given these averages, it is also important to understand that 1,194 of the students (23.9%) have zero alcohol outlets within 1 mile of their homes, 1,278 of the students (25.5%) have zero tobacco outlets within 1 mile of their homes, and 2,174 of the students (43.5%) have zero youth organizations within 1 mile of their homes. Correlations of individual-level community context variables are presented in Table 29. Overall, all associations are strong and highly significant; where there are more alcohol outlets, there are more tobacco outlets, more youth organizations and higher levels of crime, etc. The correlation between the number of alcohol and tobacco outlets is especially strong ($r = .88, p < .001$), hence these two variables were combined in analyses to represent the number of occasions for access within a one mile radius of the students' homes. On average, students have 17.0 ($SD = 16.36$) opportunities for access within one mile of their homes, and slightly fewer, 1,039 of the students (20.8%) have zero opportunities for access within the one mile radius.

Correlations of student outcome behaviors with individual-level community context variables are presented in Table 30. Initial correlations show relationships between the individual-level community context variables and student outcomes to be small, but consistently significant in the expected direction. Further interpretation of the effects will come in the following section.

Table 29

Correlations among student-level community context variables

	Number of Alcohol Outlets within 1 mile	Number of Tobacco Outlets within 1 mile	Number of Youth Serving Organizations within 1 Mile	Overall Crime at Jurisdiction-level
Number of Alcohol Outlets within 1 mile	1.00			
Number of Tobacco Outlets within 1 mile	.88***	1.00		
Number of Youth Serving Organizations within 1 Mile	.67***	.75***	1.00	
Overall Crime at Jurisdiction-level	.56***	.45***	.30***	1.00

*** $p < .001$

Table 30

Correlations controlling for state between student outcome measures and individual proximal experience of the community context variables

	Alcohol Use	Smoke Cigarette	Aggressive Behavior	Destroy Property	Problem Behavior Index
Number of Alcohol Outlets within 1 mile	.00	.08***	.05***	.00	.05***
Number of Tobacco Outlets within 1 mile	.01	.07***	.06***	.00	.05***
Number of Youth Serving Organizations within 1 Mile	-.01	.02	.04	.00	.02
Overall Crime at Jurisdiction-level	-.03	.05***	.03	.02	.02

*** $p < .001$

Hypothesis 9. The proximity of alcohol and tobacco outlets near an individual's home will additively and positively relate to that youth's problem behaviors after accounting for other community risks.

Two-tailed Generalized Linear Mixed Models (GLMM) were used to test this hypothesis. Analyses followed two main steps. First, a random-intercept model was determined to be the most efficient after comparing it to different alternative covariance structures. Models were run utilizing the new Proc Glimmix download (SAS Version 9.1), as the dependent variable (the problem behavior index) required implementing a poisson distribution because 40% of students' reported zero problem behaviors. In order to test the additive contribution of the individual's experience of the community factor, models included level 2 (community-level) controls for state, experimental condition, the community economic risk factor, and also controlled for the community-level measure of substance risk, the substance risk factor. Additionally, student gender was included as a level 1 (individual student level) control variable.

See Table 31 for a summary of results. This hypothesis was confirmed. Students that had a higher number of opportunities for access within a one mile radius of their home reported participating in more problem behaviors ($B = 0.0047, p < .0001$). Several follow-up analyses were conducted to further understand and test this effect. The first follow-up tested for an interaction between student gender and the opportunities for access. This interaction was not significant. The second follow-up analysis tested whether there was a curvilinear relationship between the individual-level community context variable and the outcome. This effect was not significant.

Table 31

GLMM predicting adolescent problem behavior index with spatial opportunities for access variable

	<i>B</i>	<i>SE B</i>
Level 2 Variables		
State	-0.2303**	0.0666
Intervention	0.0212	0.0578
Economic Risk	0.3777	0.0375
Substance Use Risk	-0.1034	0.0563
Level 1 Variables		
Student Gender	0.1936	0.0251
Opportunities for Access	0.0047***	0.0009

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

Lastly, follow-up analyses were conducted with each of the single dependent variables to test the consistency of the effect. Because the dependent variable is dichotomous, the analyses utilized a binomial distribution and random intercept specifying community as the grouping factor. Results are presented in Table 32; the opportunities for access were significant predictors of youth problem behaviors in predicting adolescent smoking and adolescent aggressive behavior. Models with alcohol use and property damage did not meet statistical significance criteria. Taken together, these results indicate that an individual's proximal experience of the community context provides unique prediction to individual problem behaviors, with the greatest associations with cigarette use and aggressive behavior.

Table 32

Follow-up GLMMs predicting different adolescent problem behaviors with spatial alcohol and tobacco variables

	<i>B</i>	<i>SE B</i>	<i>OR</i>
Model Predicting Adolescent Cigarette Smoking			
Level 2 Variables			
State	-0.5108	0.1675	0.600**
Intervention	-0.0470	0.1456	0.954
Economic Risk	0.1864	0.0946	1.205
Substance Use Risk	-0.1351	0.1411	0.874
Level 1 Variables			
Student Gender	-0.1272	0.0624	0.881*
Opportunities for Access	0.0113	0.0022	1.011***
Model Predicting Aggressive Behavior			
Level 2 Variables			
State	-0.3431	0.09483	0.710**
Intervention	0.1144	0.0825	1.121
Economic Risk	0.0558	0.0533	1.057
Substance Use Risk	-0.2678	0.0789	0.765**
Level 1 Variables			
Student Gender	0.8063	0.0622	2.240***
Opportunities for Access	0.0100	0.0021	1.010***

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

Hypothesis 10. The proximity of youth serving organizations near an individual's home will additively and negatively relate to youth problem behavior after accounting for other community resources.

Two-tailed Generalized Linear Mixed Models (GLMM) were used to test this hypothesis. Analyses followed the same process outlined above. This hypothesis was not confirmed; the number of youth serving organizations within a one mile radius of students' homes was not significant. Table 33 presents the results.

Table 33

GLMMs predicting adolescent problem behavior index with spatial youth serving organization variable

	<i>B</i>	<i>SE B</i>
Model with Youth Organizations Predicting Problem Behavior Index		
Level 2 Variables		
State	-0.176**6	0.0594
Intervention	0.0245	0.0561
Density of Youth Serving Organizations	-0.2179	0.2285
Level 1 Variables		
Student Gender	0.1942***	0.0251
1 Mile Number Youth Serving Orgs	0.0124	0.0021
Model with Youth Organizations Predicting Problem Behavior Index		
Level 2 Variables		
State	-0.1854**	0.0587
Intervention	0.0200	0.0554
Density of Youth Serving Organizations	-0.2645	0.2264
Level 1 Variables		
Student Gender	0.1928***	0.0251
Number Youth Serving Orgs	0.0347	0.0112
1 Mile Youth Serving Orgs Squared	-0.0023	0.0010

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

Hypothesis 11. The crime rate of the sub-area in which an individual lives will additively and positively relate to youth problem behaviors after accounting for other community risks.

Three-level, two-tailed Generalized Linear Mixed Models (GLMM) were used to test this hypothesis; students (Level 1) were specified to be nested within crime jurisdictions (Level 2) which were nested within school districts (Level 3). There are 68 different crime jurisdictions within the 28 communities, hence analyses will utilize traditional significance criteria (2-tailed test, $p \leq .05$) to test this effect. Before conducting analyses, the between variance at levels two and three was approximated by using Proc Mixed and assuming a normal distribution in the dependent variables. Estimations of the ICC are presented in Table 34. Level 2, the crime jurisdiction within which the student lives, seems to account for very little variance in the dependent variable.

Table 34

Approximations of ICCs for 3-Level Models: Students nested within crime jurisdiction areas, nested within school districts

Level and Dependent Variable	Between Variance	Within Variance	ICC	Significance
Level 3, Community: Prob Behavior Index	0.0319	1.7191	.0182	Yes
Level 2, Crime Jurisdiction: Prob Behavior Index	0.0319	1.7191	.0182	*No additional clustering at Level 2
Level 3, Community: Alcohol Use	0.0034	0.2423	.0139	Yes
Level 2, Crime Jurisdiction: Alcohol Use	0.0039	0.2423	.0157	*A tiny bit specific to Level 2, NS
Level 3, Community: Cigarette Use	0.0045	0.2045	.0214	Yes
Level 2, Crime Jurisdiction: Cigarette Use	0.0064	0.2045	.0304	*A bit specific Level 2, but still NS
Level 3, Community: Aggressive Behavior	0.0012	0.2187	.0053	*A tiny bit specific to Level 3, NS
Level 2, Crime Jurisdiction: Aggressive Behavior	0.0020	0.2187	.0092	*A tiny bit specific to Level 2, NS
Level 3, Community: Property Damage	0.0013	0.1669	.0075	Yes
Level 2, Crime Jurisdiction: Property Damage	0.0013	0.1669	.0075	*No additional clustering at Level 2

Analyses followed a similar process as outlined above. Models included level 3 (community-level) controls for state, experimental condition, economic risk, and the community overall crime measure, as well as a level 1 control (student individual-level) for student gender. The individual's proximal experience of the community factor of crime was entered at level 2, and analyses started with the problem behavior index as the dependent variable.

The first three-level models that examined the added contribution of jurisdiction crime in predicting the problem behavior index did not converge. Increasing the number of allotted iterations (to 500) did not improve convergence. This finding is not surprising given that the estimated variance in the problem behavior index due to the crime jurisdiction area was estimated to be zero. Models were then run with two levels: community and individual.

This hypothesis was confirmed (see Table 35). Students that lived in municipal areas that had higher rates of crime reported participating in more problem behaviors ($B = 0.0725, p = .01$). Several follow-up analyses were conducted to further understand and test this effect. The first follow-up tested for an interaction between student gender and the opportunities for access. This interaction was not significant. The second follow-up analysis tested whether there was a curvilinear relationship between the individual-level community context variable and the outcome. This effect was not significant.

Table 35

GLMM predicting adolescent problem behavior index jurisdiction crime rates

	<i>B</i>	<i>SE B</i>
Level 2 Variables		
State	-0.1615	0.0693*
Intervention	0.0431	0.0638
Economic Risk	0.0181	0.0385
Community Crime	-0.0461	0.0516
Level 1 Variables		
Jurisdiction Crime	0.0725	0.0282**
Student Gender	0.2052	0.0263***

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

Follow-up analyses then examined the individual's proximal experience of crime in relating to each of the four separate problem behaviors. Results are presented in Table 36. The model predicting alcohol use was run as a 2-level model because the three-level model would not converge; the two-level model was not significant.

Three-level models were able to be run for the remaining dependent variables. The added affect of crime rates at level two was significant in predicting smoking ($B = 0.18, p < .05$) and aggressive behavior ($B = 0.16, p < .05$); students that lived within areas that had more crime were more likely to smoke and participate in aggressive behavior. A second follow-up analysis tested the significance of an interaction between level 1 gender and level 2 crime; the interaction term was not significant in all models.⁷

⁷ Lastly, there was some concern that one crime jurisdiction had reported zero crimes (on the specific crimes of interest). One final follow-up analysis was conducted to assess the influence of that crime jurisdiction on the results. Omitting this group of students ($n = 28$) did not change the results; the amount of crime of the geographic area within which students live positively related to smoking and aggressive behavior.

Table 36

GLMMs predicting different adolescent problem behaviors with jurisdiction crime rates added at level 2

	<i>B</i>	<i>SE B</i>	<i>OR</i>
Model Predicting Cigarette Smoking			
Level 3 Variables			
State	-0.3855	0.1536	0.68*
Intervention	0.0020	0.1419	1.00
Economic Risk	0.1760	0.0860	1.19*
Community Crime	-0.1492	0.1182	0.86
Level 2 Variable			
Jurisdiction Crime	0.1800	0.0788	1.20*
Level 1 Variable			
Student Gender	-0.1158	0.0653	0.89
Model Predicting Aggressive Behavior			
Level 3 Variables			
State	-0.2399	0.1189	0.79*
Intervention	0.1041	0.1080	1.11
Economic Risk	-0.0078	0.0644	0.99
Community Crime	-0.0689	0.0939	0.93*
Level 2 Variable			
Jurisdiction Crime	0.1632	0.0686	1.18*
Level 1 Variable			
Student Gender	0.8229	0.0649	2.28*

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

Chapter 4

DISCUSSION

The goal of the present study was to comprehensively examine the relationships among community-level risks and resources, and youth problem behaviors in rural and small towns. Using a mixed method approach, the findings from this study suggest that community risks tend to occur together, whereas community resources are more independent of one another, and that communities with more risks do not necessarily have a low number of resources. Thus, community risks and resources may act independently in predicting youth outcomes. Second, the findings from this study suggest that numerous aspects of the community context, with special emphasis on the school context, predict community rates of adolescent problem behaviors and youth's individual participation in problem behaviors. Understanding the community context (risks and resources) can highlight additional targets for intervention, yet it can also highlight possible reasons as to why a community-based intervention may or may not be successful. Lastly, understanding the social and economic structure of the community context can help community coalitions organize, plan, and implement interventions, which should increase their effectiveness. The following discussion will explore the results of each specific aim separately while interspersing suggestions for future research, and will close with a discussion of implications for intervention and limitations.

Specific Aim 1

The first aim examined the associations among community risks, the associations among community resources, and the relationships between community risks and resources. Findings suggest that economic risk is somewhat of a focal point for risks in the community environment: economic risk had positive associations with crime rates, assessments of school district risk, and substance use risk. This finding is not surprising given former research that demonstrates moderate relationships between economic risk and crime (Kawachi et al., 1999; Peterson et al., 2000; Sampson & Groves, 1989; Sampson et al., 1997; Lee & Ousey, 2001), substance availability (Peterson et al., 2000; Scribner et al., 1999; Scribner et al., 1995), and various aspects of school district functioning (Birnbaum, Lytle, Hannan, Murray, Perry, & Forster, 2003; Birnbaum, Lytle, & Perry, 2003; Raudenbush, 2004). However, the current findings indicate that the effect of economic risk generalizes to communities in rural and small town contexts with relatively low economic risk. Thus, even within a relatively narrow band of economic risk, economic risk is related to other community risks. These findings indicate that it may be possible that other aspects of the community context will change if levels of economic risk change. Observational support comes from a recent epidemiological study that a change in community economic risk relates to decreases in child psychiatric symptoms (Costello, Compton, Keeler, & Angold, 2006).

In contrast to risk factors, the community resources were less related to each other, and the relationships between community risks and community resources were variable. For example, there were few significant relationships among the perception of collective efficacy, schools acting proactively, the density of youth serving organizations,

and structured activity opportunities. The only positive relationship among measures of resources occurred between the density of youth serving organizations and the proactive nature of the school leadership. These findings indicate that different resources in a community may be unrelated and thus communities may be high in some resources and not others.

There were some significant associations between risks and resources. The density of youth serving organizations was positively related to economic risk, crime and substance risk, and the proactive nature of the school leadership also related positively to substance risk. Combined, these findings may indicate that community leaders, who hold positions of power and also have access to resources, are aware of their communities' needs and are trying to respond to them and increase youth opportunities in order to reduce poor youth outcomes.

On the other hand, collective efficacy had significant negative relations with indicators of school district risk and community norms of adolescent substance use. Collective efficacy, the ability of a neighborhood or community to achieve common goals (Sampson et al., 1997), measures more grass-roots action of community members rather than actions led by community leaders. The combination of these findings may indicate that community leaders may be in a position to respond to community needs, and therefore, their actions may be somewhat resilient in the context of high community risk. However, actions of community members that are associated with collective efficacy may be lower when their contexts are more risky. Though the present study cannot establish causal connections, prior research has shown collective efficacy to mediate the relationship of community demographics with various community outcomes

(Lowenkamp et al., 2003; Sampson et al., 1997; Sampson & Raudenbush, 1999). It is possible that collective efficacy is a key component of the community context, and changing levels of collective efficacy may relate to other changes in the community environment.

Collective efficacy and crime. The present study did not replicate the significant linear negative relationship between collective efficacy and crime rates across the 28 communities. However, moderately strong negative relations were found when the sample was split into high crime and low crime communities. That is, within the 14 low crime communities, collective efficacy related negatively to crime rates, and the same negative relation was also found in the 14 higher crime communities. At this point no strong conclusions can be made. This is the first study that has explicitly examined these variables in numerous distinct communities which encompassed several different crime jurisdictions; previous research typically divides one large geographic area into many smaller locations (e.g. Peterson et al., 2000; Plybon & Kliwer, 2002; Sampson et al., 1999). It is possible that there was a characteristic of communities unexamined in this study that may explain the possible bimodal distribution that resulted when combining these two constructs. However, other possibilities also exist. It is possible that these constructs relate differently to each other within rural and small town areas, and it is also possible that the reliability of crime reporting is not as high in these rural contexts compared to a large urban area.

Substance risk. The substance risk composite was created from data gathered from both interviews and geographic sources. Measures of internal consistency demonstrated that these items formed one construct; however, it is interesting to note that

the perceived community norms of adolescent alcohol and cigarette use had stronger relations with the geographic measures of availability (i.e. density of outlets in each community) than with the perceived measures of availability. In addition, this study did not find positive associations between this multi-method community-level substance risk construct and community rates of adolescent substance use and delinquency. Most studies that have found a link between substance availability and community norms of adolescent substance use have asked the students themselves how easy it would be to obtain various substances and what their perception of community norms is (e.g. Arthur et al., 2002; Botvin et al., 2001; Ennett et al., 1997; Glaser et al., 2005; Hawkins et al., 2004), however, this leads to a reporter bias. It only makes sense that the students that are using substances would perceive easier access and more acceptable norms, hence the positive relationship in prior research.

It is possible that the measure in this study represents a more accurate community-level description of this construct; however, it may be helpful for future research to investigate the meaning and significance of interview measures compared to geographic measures of this construct. A limited amount of prior research suggests that the relationships among community norms, substance availability, and rates of community problems are more complicated. The relationship between community-level density of alcohol outlets and community violence was moderated by the community's risk level in one study of urban communities; the community-level density of alcohol outlets did not predict community rates of violence in relatively low risk communities, communities that had a higher median income, lower unemployment rates, fewer

minority residents and fewer single-parent household (Gorman et al., 1998). This community sample is similarly a lower risk community context.

Summary. In the rural and small town context of the present study, the level of economic risk seemed to act as a focal point of risk, whereas community resources were more independent of one another. In addition, the density of youth serving organizations and the proactive nature of school leadership related positively with community risks whereas, collective efficacy related negatively to community risks.

Specific Aim 2

The second aim examined the relationship between community risks and resources and community rates of adolescent problem behaviors. Findings indicate four main points. First, community rates of adolescent cigarette smoking and property destruction had stronger relationships to the community context (both risks and resources) than community rates of adolescent alcohol use and aggressive behavior; both the number of community context variables that significantly related to these outcomes and the strength of their relationships were greater. It is possible that community rates of cigarette smoking and property destruction would be malleable to changes to the community context, if the appropriate aspects of the community context can be changed.

Second, the school context was the most consistent predictor of community rates of adolescent problem behaviors. The school problems, district academic risk, and school proactive measures all related to all four community rates of adolescent problem behaviors. Adolescent self report of alcohol use, cigarette use, aggressive behaviors, and property destruction were more frequent in districts that were perceived to be

overwhelmed with challenges, had lower academic proficiency ratings, and had a less proactive and outreach-oriented leadership. This finding reinforces the idea that the school context plays an important role during the middle school years in adolescent problem outcomes (Eccles et al., 1993; Felner et al., 1993). This finding also expands on prior research by examining general leadership and academic qualities rather than only specific aspects of school organization. It is possible that these leadership and academic proficiency characteristics are related to the school structure (e.g. large schools, a rotating class schedule that occurs outside of teams of teachers, a lecture-oriented teaching delivery method that limits student involvement, etc.); however, that specific hypothesis could not be explored in this study.

The third finding is that the relationship between the various community risks and resources was sometimes curvilinear. For example, district academic risk was related to higher rates of smoking at the medium and high end of the distribution of academic risk, whereas school problems was related to higher rates of aggressive behavior and property destruction only at the high end of the distribution of school problems. Additionally, collective efficacy and school proactive were related to lower rates of aggressive behavior only at the high end of their distributions. It should be noted that the shape of the curve differed depending on the combination of the community context construct and the outcome; at times the “medium risk” group was protected almost as much as the “low risk” group (e.g. aggressive behavior & school problems), but at other times the “medium risk” group was at almost the same risk level as the “high risk” group (e.g. academic risk and smoking). This finding makes it more difficult to make recommendations to community members about the magnitude of community change that is needed and likely

to improve youth outcomes, as incremental changes in the community context are likely to result in changes in youth outcomes only if a threshold of risk/resource is surpassed. As this finding is the first of its kind, future research is needed to confirm these relationships and further explore these threshold points.

The last finding of aim two is that participation in the PROSPER community-wide intervention altered the relationship between community factors and rates of adolescent behaviors. First, PROSPER intervention communities with highly challenged schools and whose school leaders were not proactive had lower rates of alcohol use than similar control communities. Second, PROSPER intervention communities with high levels of economic risk and those with highly challenged schools had lower rates of cigarette smoking than similar control communities. Third, PROSPER intervention communities with high levels of economic risk and high levels of academic risk had lower rates of adolescent participation in property destruction.

Economic risk and the school context were the two domains that were most often moderated by participation in the community-based intervention. It is not surprising that the relation of the school context to rates of youth outcomes would be affected by the intervention partly because of the nature of the interventions. The intervention programs are likely to have taught students skills which protected them in high economic risk and high school risk contexts. Findings from previous individual-level research validate that participation in school-based intervention programs can improve skills and/or student attitudes which then predicts lower individual rates of substance use and/or delinquency (e.g. Battistich, Schaps, & Wilson, 2004; Botvin et al., 2001; McNeal, Hansen, Harrington, & Giles, 2004).

Specific to how PROSPER operates, it is also possible that the crucial role the school district and its leadership plays in the partnership structure are key components of the PROSPER model. The school district leadership was recruited as collaborative partners and co-leaders of the PROSPER partnership teams. The principal and another highly respected administrative or teaching staff member is usually an official member of the team. Having this level of involvement is likely to increase the administration's knowledge about the importance of family involvement and parenting practices, as well as help the school prioritize and focus outreach strategies. Lastly, the school building is an integral part of intervention delivery. The family-based programs are implemented within the school building after school hours which require coordination with and the support of the school teaching and administrative staff. Sometimes teachers are facilitators of the family program, and they frequently engage in behaviors that would demonstrate their support of the PROSPER community effort. PROSPER team members are allotted time to give presentations to recruit students and their parents during class, and teachers may pass out flyers and make announcements about the program themselves. All of these behaviors would naturally reinforce program goals to all students. Involving the school district in these ways potentially enabled the relationship between the school context (i.e. level of academic risk, overwhelmed with problems, etc.) and youth outcomes to be different in intervention communities compared to control communities.

One result of participation is that PROSPER communities changed their seventh grade drug and alcohol curriculum to one that has a strong evidence-base. The finding that participation in the PROSPER intervention moderated the relationship of the school

context to rates of youth outcomes may indicate that the program can be equally successful in varying school environments.

Economic risk was the second domain that was most often moderated by participation in the PROSPER intervention. Similar to prior research (Adler et al., 1994; Duncan et al., 2002; Osgood & Chambers, 2000; Simcha-Fagan & Schwartz, 1986), economic risk predicted rates of smoking and rates of some delinquent behaviors in the control communities, but economic risk was not a strong predictor in the intervention communities. There are several possible mechanisms by which this change may have occurred. First, given the relationship between economic risk and the school context, it is possible that high economic risk communities have better outcomes because of the involvement of the school and the possible changes as described above. However, there are other possibilities that also should be considered. It is possible that the financial capital that PROSPER programs brought to communities increased the funding available for prevention within a context that usually would not have adequate prevention resources. Additionally, participation in PROSPER is a specific and focused prevention effort. Together, these changes could have negated the risk posed by a community's economic status.

Involvement in PROSPER programs may also have moderated the affect of community economic risk in other ways. It is possible that the universal nature of the intervention system is a key characteristic. The universal nature of the programs is likely to be advantageous partly because a lack of stigmatization is likely to encourage participation of *all* students and families (Offord, 2000). It would also be generally accepted that the proportion of "high risk" students and families is greater in

communities that have higher levels of economic risk and that there is more room for growth when a larger proportion of the population is “high risk.” These are a few mechanisms by which the PROSPER intervention may have altered the positive relationship between economic risk and community-level student outcomes.

Specific relationships. In addition to the school context, other community risks and resources had significant relationships with various community-level outcomes. As in prior research, residential instability was a significant predictor of adolescent problem behaviors (Ennett et al., 1997); it had significant positive relations with community rates of aggressive behavior and rates of adolescent property destruction; it also had a curvilinear trend with alcohol use. It is not surprising that residential instability predicted adolescent problem behaviors, as it is well accepted that students that move more often typically do worse in school and have poorer psychological adjustment (Adam, 2004; Costello, Keeler, & Angold, 2001; Gilman, Kawachi, Fitzmaurice, & Buka, 2003; Pribesh & Downey, 1999; Stoneman, Brody, Churchill, & Winn, 1999). It is interesting that the significance of this construct seems to generalize to the level of the community. Perhaps it operates in a similar fashion. Student populations that live in communities that have high rates of residential instability may have a difficult time forming attachments to other students and also to their physical community. It is also possible that lower levels of parental monitoring in these contexts are a key factor, and recent research supports this link (Beyers, Bates, Pettitt, & Dodge, 2003). It is also possible, that anger, detachment, and isolation may be symptomatic of the student population. Student populations that are more mobile may also participate in these risk behaviors to gain acceptance with new peers.

A somewhat surprising finding was that community rates of adolescent alcohol use were not strongly predicted by community risks and resources, and specifically, rates of adolescent alcohol use were not related to community economic risk. Some previous research suggests that alcohol use is a more equal opportunity behavior (Brown et al., 2001; Ennett et al., 1997), whereas other previous research demonstrates that alcohol use has a positive association with socioeconomic indicators (Adler et al., 1994). Recent work has also been done that highlights the family and achievement context of middle to high SES communities (Luthar, 2003; Luthar & Becker, 2002); rates of adolescent alcohol use may be higher in these contexts because students in these contexts typically spend less time with their families due to parental work obligations and after school activities, and students in these situations feel greater pressures to excel academically and socially, all of which may result in higher rates of alcohol use. Despite the somewhat decreasing trend of adolescent alcohol use over the last 15 years, the national percentage of eighth grade students that have drunk more than a few sips of alcohol is still relatively high, at 41% (Johnston et al., 2006), and the percentage of eighth grade students that have drunk more than a few sips of alcohol in the present study was even slightly higher, at 45%. Taken together, these findings suggest that there is something different about adolescent alcohol use compared to other adolescent problem behaviors (e.g. smoking, aggression, etc.).

Community rates of adolescent cigarette use, aggressive behavior, and property destruction are approximately 15 points lower than rates of alcohol use. Rates of cigarette use and property destruction were significantly related to economic risk, whereas rates of cigarette use and aggressive behavior were related to collective efficacy.

Rates of cigarette use and property destruction may be more related to collective efficacy partly because they are less frequent behaviors; they may be easier behaviors around which community residents can organize. Anti-tobacco media messages (Biener, Reimer, Wakefield, Szczypka, Rigotti, & Connolly, 2006; Hyland, Wakefield, Higbee, Szczypka, & Cummings, 2006; Johnston, Terry-McElrath, O'Malley, Wakefield, 2005; Thrasher, Niederdeppe, Jackson, & Farrelly, 2006) and anti-bullying and anti-violence messages are becoming more commonplace within our society (Crawford, 2002; Health Resources and Services Administration, n.d.). The broad societal message that these behaviors are not acceptable may make it easier for community residents to realize preventing these behaviors as common goals.

Future research should examine the additive explanatory power of collective efficacy with various community risks, and possible interactions in predicting these and other community outcomes. Prior research suggests that community factors such as economic risk and residential instability are mediated by collective efficacy when predicting community outcomes such as crime (Lowenkamp et al., 2003; Sampson et al., 1997; Sampson & Raudenbush, 1999), and that informal social control mediated the relationship between neighborhood disadvantage and individual reports of delinquent behaviors (Elliott et al., 1995). This evidence expands the prediction of collective efficacy to community rates of general adolescent problem behaviors; a natural next step would be to combine these constructs into one model.

Accumulated risk / resource models. The present study also explored the idea of accumulated community risks and resources. There was some evidence that communities with many risks had higher rates of smoking, and there was some evidence that

communities with many resources had lower rates of aggressive behavior. These findings are striking, in part, because all theorized community risks and community resources were included within the measures, regardless of their significance to the outcomes.

In addition to these main effects, there was some evidence that the number of risks and the number of resources interact to predict community rates of problem behaviors. Communities with more risks had lower rates of adolescent problem behaviors if they also had resources available to their students. At this point the only outcome that showed this relationship was community rates of property destruction. In predicting community rates of property destruction, the number of resources did not matter in communities that had zero elevated risks. In the absence of community resources, rates of adolescent property destruction increased as the number of risks increased. Yet, the communities that had the lowest rates of property destruction were high risk, *high resource* communities.

More and more, stress is gaining evidence as a link between context, whether it be an individual's work context, family context, or the community context and outcomes (e.g. Adler et al., 1994; McLoyd, 1998; Plybon & Kliewer, 2001); it could be that community contexts with many risks and an absence of resources are more stressful environments in which to live, thereby producing higher rates of community problems.

Some suggest at the individual-level that the link between poverty (i.e. a more risky context) and outcomes is due to a differential access to resources (American Psychological Association [APA], 2006). This individual-level theory that focuses on the context of poverty can be broadened to help understand the present study. Having

resources in high risk environments may decrease the stress community residents experience on a day-to-day basis, or it could be that community resources may simply balance out the experience of community risk. Community institutional resources are commonly discussed as important components of the community context, yet empirical evidence that links resources other than the school context to adolescent outcomes is relatively sparse (Leventhal & Brooks-Gunn, 2000).

Specific to explaining community rates of adolescent property destruction, perhaps a community context that is balanced between risks and resources can be a healthier environment in which to live. Potentially, community residents place a higher value on the resources they have when they also have many risks in their community environment. This value may translate into lower rates of property destruction by adolescents. Lastly, the rate of property destruction was the only community-level outcome examined in this study that was affected by this risk/resource combination. It is possible that other aspects of youth outcomes are also affected by this type of interaction. The curvilinear nature of many of the community context variables may suggest that different cut-points may be more important for various community risks and resources.

The impact of structured activities. There were no main effects of community availability of structured activities on community rates of adolescent problem behaviors. There was, however, some confirmation of the hypothesis that community transportation resources moderates the relationship between community levels of structured activities and rates of problem behaviors. This interaction was significant in predicting rates of aggressive behavior. Rates of aggressive behavior were highest in communities that had many structured activity opportunities that did not provide transportation home from

activities after school, whereas rates of aggressive behavior were lowest in communities that had many structured activity opportunities that provided transportation home from activities after school. Transportation resources did not matter in communities that had a low or moderate level of activity opportunities.

This combination may be especially important for this outcome for a few different reasons. Rates of adolescent delinquency and violence are highest in the after school and before dinner hours (Gottfredson et al., 2001; Snyder & Sickmund, 1999). It could be that school districts that provide bus service home after school activities engages students in activities that would not otherwise be able to be involved in activities. With this situation, the students that would otherwise be engaging in fights are preoccupied *continuously* throughout the after school hours.

Another possibility is that providing bus service home reduces the amount of time that students are hanging-out unsupervised between their activities and being connected to their home environments. The routine activity perspective (Osgood et al., 2005) would suggest that getting students home soon after these activities conclude prevents unsupervised socializing time during which delinquent behaviors, in this case conflicts between students, are likely to arise. Without immediate transportation home, students are likely to slowly drift home on their own, or wait around to be picked up by parents or other adults.

Contrary to hypotheses, there was no relationship between the community-level availability of structured activities and student rates of problem behaviors. This is the first time that this construct has been explored as a potential community-level construct, and similar to initial research that indicated individual participation in sports activities to

be positively related to alcohol use (Eccles & Barber, 1999), it is likely that protective effects are more complicated and specific than the general measures included in this study. The interaction effect described above is one example of this complexity.

The broad construct of structured activities could be divided into types of activities, or a measure of the variety of activity opportunities could be created. It could also be examined separately by gender. For example, recent research demonstrates various combinations of activities are important; students that participate in only sports engage in more risky behaviors, but students that participate in a variety of activities (sports included) are less likely to engage in risky behaviors (Linver & Roth, 2006; Simpkins & Eccles, 2006). Also, recent research indicates that after school enrichment activities that improve academic proficiency relate to better youth outcomes rather than after school activities that provide strict academic support (VanEgeren, Wu, Hawkins, & Reed, 2006). Additionally, the research that uses refined activity categories (Hanson, 2006) and that focuses on the relationship between activity participation and identity development and the search for meaning is another example of this complexity (e.g. Coatsworth, Palen, et al., 2006).

It is also possible that community availability of structured activities is a specific resource that moderates community risk. In other words, that community availability of structured activities is protective in certain environmental contexts, such as high crime or high economic risk. Future research should expand on these initial research questions. Understanding how the availability of structured activities works as a community-level construct can help community leaders plan appropriate activities with the appropriate supports for students.

Specific Aim 3

The third aim investigated the added contribution of a more proximal geographic context of risks and resources to the individual in predicting each individual's problem behaviors. The present findings indicate that a more proximal context does matter after accounting for the larger community context. As in prior research that focused on adult attitudes and behaviors (i.e. Chuang et al., 2005; Kruger et al., 2005), the individual youth's opportunity for access to alcohol and tobacco within one mile of their residence was positively related to their level of problem behaviors even after accounting for community-level risks. In addition, the crime level of the jurisdiction area within which students live added further prediction to participation in cigarette smoking and aggressive behavior.

Exactly how these proximal influences operate is unclear. It is possible that students spend more of their unsupervised time within these higher risk areas when these locations are nearby. These locations may be hang-out points for groups of youth of various ages, and provide local students opportunity to purchase these substances without being carded. It is also possible that students that live within this environmental context perceive more accepting community norms of adolescent use and engagement in delinquent behaviors.

Findings from aim two and three indicate that the effect of crime may operate on a smaller level than an entire school district. School district measures of crime did relate in the expected direction to constructs such as economic risk and residential instability. However, crime jurisdiction findings indicate that the impact of community crime as a

risk factor also operates on a smaller geographic level. This finding is similar to other research that has used smaller contexts (i.e. the census block) and found significant relationships between crime and problem behaviors in urban areas (Coulton et al., 1995; Plybon & Kliwer, 2001), and it supports research that connects witnessing and/or perceived violence to individual problem behaviors (Arthur et al., 2002; Garbarino & Kostelny, 1996; Lynam et al., 2000; Mazefsky & Farrell, 2005; McGee, 2003; Patchin, Huebner, McCluskey, Varano, & Bynum, 2006), as students living in higher crime areas are more likely to witness violence.

Summary. Though the larger community context did have consistent and strong relations with youth problem behaviors, the findings in the third specific aim indicate that it is important to also consider the more proximal community context. Measures that describe the geographic area within which a student lives add unique prediction to their individual participation in problem behaviors.

Implications for Community Actions and Intervention

Together, the findings from this study have several implications for community-based intervention. First, the findings can be used to help communities use resources efficiently. The findings indicate that the PROSPER intervention was successful in moderating the impact of economic risk and school risks in predicting community rates of adolescent problem behaviors. Therefore, it may be wise to direct resources towards intervention programs that operate within a larger operating system that connects community agencies and schools with technical support and university resources, as well as prioritizes the use of evidence-based strategies (Spoth et al., 2004). Community agencies and universities both have skills and expertise that make this type of relationship mutually beneficial. It is also possible that coordinating resources in this way allows both community agencies and university prevention researchers to reach their full potential; a certain synergy might occur with this coordination.

Additionally, these findings highlight how community-level measurement and community-level research questions can be used to understand effects of community-based intervention. As the field of prevention research moves further into studies of effectiveness and dissemination, analyses that assess the community context and what role the community context played in intervention delivery and effectiveness is imperative. It is commonly accepted that investigating intervention effectiveness is better understood through the implementation of mediator and moderator models (MacKinnon & Dwyer, 1993; MacKinnon & Lockwood, 2003), however, these questions are traditionally focused at the individual-level (e.g. Battistich et al., 2004; Botvin et al., 2001; Griffin et al., 2001; McNeal et al., 2004). Some research questions are more

appropriate at the community-level, and community-level measurement and analysis allows researchers to better assess and describe the intervention's impact on public health. Recent research that demonstrates the significant and persistent relationship between poverty and community coalition functioning are two example (Feinberg, Chilenski, Greenberg, Spoth, & Redmond, 2006; Greenberg, Feinberg, Chilenski, Spoth, & Redmond, 2006).

The findings in this study also suggest that new intervention strategies that target community factors such as economic risk, residential instability, and collective efficacy may be successful in improving youth outcomes. Levels of economic risk and residential instability may be decreased through logistical efforts such as increasing job opportunities so that residents do not have to move if they lose, need, or want a new job. The attachment component of collective efficacy may be accomplished by working with business leaders to replace "riskier" neighborhood businesses with more positive ones (e.g. replace the corner convenience store with a farmers market, health food store or coffee shop), whereas both components of collective efficacy may be improved by incorporating physical structures and places that encourage community residents to interact with each other while engaging in constructive activities. Creating opportunities for residents to get involved in community organizations and attend community events may also help decrease residential instability and improve collective efficacy (i.e. increase resident commitment to their community and neighbors, as well as increase their initiative to get involved in their communities and intervene when there is a problem). At this point causal connections have not been determined, as these suggestions are based on the present and prior observational studies (e.g. Perkins, Florin, Rich, Wandersman, &

Chavis, 1990; Peterson & Reid, 2003). Future research should attempt to manipulate these aspects of the community context so that causality and the effectiveness of these strategies can be determined.

Additionally, the findings indicate that improving the schools in all communities, low economic risk and high economic risk communities, may be an efficient use of community resources. Given the consistent effect that the measures of the school context had on community rates of youth outcomes, improving the academic proficiency and effectiveness of school leadership should have wide-ranging implications for youth outcomes.

The findings of this study also suggest that the effectiveness of community collaborative prevention efforts may be increased if they take notice of and pay attention to the smaller geographic contexts within the larger community. The school districts in this community sample encompass multiple boroughs, township areas, small towns, and/or county areas. It is common for school districts to cross various official geographic and unofficial (i.e. neighborhood) boundaries. The analyses in the third aim indicate that there are some meaningful contextual differences among these areas. Community collaborative prevention efforts may be even more effective if they recognize and embrace these differences. They could accomplish this task in many different ways. They could select representatives from various sub-areas to participate on the collaborative board. The use of visual tools may also assist community collaborative boards to identify the various needs and differences of the sub-areas. Developing this type of visual tool can be done through something as complex as working with a geographic information systems specialist, or it can be done through an activity as simple

as the “eco-map” (see Scheve, Perkins, Mincemoyer, & Welsh, 2006 for an example of an eco-map activity). The combination of specific representation and the use of visual tools are likely to ensure various community needs are being met. Additionally, if these resources are used continually in program planning, tracking, and assessment of progress, it is also likely to identify gaps of service delivery.

Limitations

The findings of the present study need to be considered within a small number of caveats. First, though 28 communities is a relatively large number considering the depth and breadth of the present study, the study is slightly underpowered. Directional hypotheses were combined with adjustments to the statistical significance criteria in order to compensate, however, it is possible that important findings were overlooked. Yet, because of the more generous statistical significance criteria, it is also possible that some findings were interpreted that were due to chance, rather than statistical significance and meaning. Scatterplots and fit indices were carefully examined, and models were run without influential cases as additional safeguards, but this limitation needs to be considered.

The timing of the data collection of the community context measures also should be highlighted as a possible limitation. Whereas most of the community context measures were collected during early stages of the project (between 2001-2003) and before many of the students entered the middle school environment, the data on structured activities, alcohol and tobacco outlets, and youth serving organizations was collected after student participation in the survey. It is thought that these community

characteristics are mostly stable and the slight difference in the timing of the data collection had minimal, if any, impact on the results of this study, however, this limitation should also be noted. Lastly, as this sample is made up of rural and small town areas, these findings can most safely be generalized to similar environmental contexts.

CONCLUSION

Results from the present study indicated that the community context as measured by various community risks and resources are important elements in adolescents' lives. The school context proved especially influential as it predicted community rates of adolescent alcohol use, cigarette use, aggressive behavior, and property destruction. Economic risk also had strong relations with cigarette use and property destruction, and a community's level of crime, residential instability, and collective efficacy were also important. In addition to direct linear effects, these relationships were sometimes curvilinear, indicating that at times the community risk or resource was the strongest at only the highest levels, as in the case of school problems and collective efficacy with rates of aggressive behavior, but at other times the risk impacted a larger section of the distribution, as in the case of academic risk and rates of smoking.

Community participation in the PROSPER intervention was an important moderator in understanding how the community context impacted rates of youth problem behaviors. Participation in the intervention changed the relationship between the school context and community rates of alcohol use, cigarette use, and property destruction, and it also changed the relationship between economic risk and community rates of smoking and property destruction. Communities with high risk levels on those constructs had lower rates of those problem behaviors if their community participated in the PROSPER intervention.

School districts' use of transportation resources proved to be an important moderator of the relation between community structured activity resources and rates of aggressive behavior. Rates of aggressive behavior were high in communities that did not

provide busses home after school activities for those communities that had many structured activity resources. However, rates of aggressive behavior were low for communities that had the same level of structured activity resources and provided busses home after these activities. This finding highlights the complexity of understanding how leisure time activities relate to adolescent outcomes.

Lastly, these findings validate the school district as good operational definition of community and as a target population for community-based interventions. However, it is important to recognize the variability within a community setting. The findings that the specific crime jurisdiction within which a student lives, and that the number of opportunities for access to alcohol and tobacco within a one mile radius of the students' homes highlight the importance of examining sub-sections of the larger community context. These smaller contexts uniquely predict adolescent problem behaviors. Community-based prevention efforts may be even more effective if they address the needs of the subsections of their communities.

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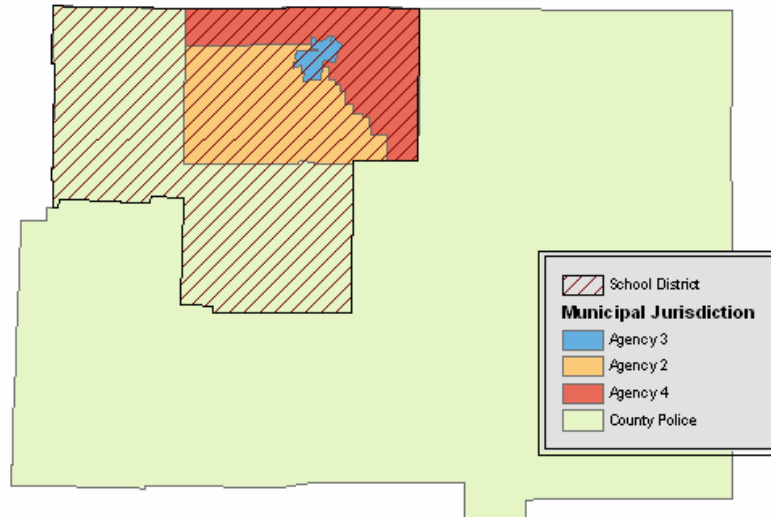
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APPENDIX A

Illustration of how school district crime rates were created

Estimating a School District Rate of Crime Using Agency-level Reported Data



Crime Jurisdiction	Square Miles of Jurisdiction	Square Miles within School District	Percent of Area w/in SD	Number of Property Crimes	Weighted Number of Property Crimes
County Police (Agency 1)	836.80	147.02	17.57%	150.67	26.47
Agency 2	55.98	55.98	100.00%	52.33	52.33
Agency 3	3.46	3.46	100.00%	201.00	201.00
Agency 4	46.43	46.43	100.00%	58.00	58.00
Total Number in District					337.80
District Population					21772
Yearly Rate of Property Crimes (Per 100,000)					1551.55

APPENDIX B

Youth activity interview protocol

PROSPER Partnerships
Youth Activity Expert Interview
Cover Page

- 1) ID Number

- 2) Male / Female

- 3) Community Name

- 4) Position in Community (circle one)
 - a. 4-H / Youth Development Agent
 - b. PE Teacher
 - c. Parks & Recreation Official
 - d. YMCA Official
 - e. Parent
 - f. Other

- 5) Date of Interview

- 6) Interview Start Time

- 7) Interview End Time

- 8) Comments

INTERVIEW START:

Hello, may I speak with [Respondent]?

Hi, this is [Your Name] calling from the PROSPER Project at Penn State University. Is now still a good time to talk with you about the recreational opportunities that are available for the middle school students that live in the [INSERT DISTRICT NAME] School District?

If no:

I'm sorry to hear that. Can we reschedule for another time? We would really like to hear from you. *[Check interviewer schedule, etc. Follow outline at end of the "Recruitment Script"]*

If no longer wants to do interview:

[Thank them and say goodbye.]

If yes:

Great. *[Interviewer move to the consent form/script. After obtaining consent, continue on with interview below.]*

Do you have those response cards handy? If not, I can quickly email them to you. *[If needed, send email with response cards]*

As we go along, please keep in mind that when I say "this community," I am referring to the students that live within the [INSERT DISTRICT NAME] School District.

We are first going to start with a few general questions about what transportation is like in this community, and about the recreational opportunities this community has for the middle school students. Please keep in mind that when I say "recreational opportunity" I am referring to any activity or program that middle school students can do in their out-of-school time, and those activities during school that are not part of the basic academic curriculum that would be considered constructive. For these first few questions, please refer to RESPONSE CARD A.

C38

In this community, students are frequently unable to participate in recreational opportunities because of challenges with transportation

1. Strongly Disagree
2. Somewhat Disagree
3. Somewhat Agree
4. Strongly Agree

8. Don't Know
9. Refused

C39

Compared to the average community, the middle school students in this community really get involved in school & community activities

1. Strongly Disagree
2. Somewhat Disagree
3. Somewhat Agree
4. Strongly Agree

8. Don't Know
9. Refused

C40

There is little for middle school students in this community to do

1. Strongly Disagree
2. Somewhat Disagree
3. Somewhat Agree
4. Strongly Agree

8. Don't Know
9. Refused

C41

This community provides quality recreational opportunities for middle school students

1. Strongly Disagree
2. Somewhat Disagree
3. Somewhat Agree
4. Strongly Agree

8. Don't Know
9. Refused

C42

The recreational opportunities for middle school students in this community usually have more spaces available for participants than they need

1. Strongly Disagree
2. Somewhat disagree
3. Somewhat Agree
4. Strongly Agree

8. Don't Know
9. Refused

Thanks so much. Now you can put down RESPONSE CARD A. The next section, then, will be asking about specific types of organized recreation activities – activities such as organized sports, music, leadership, or other types of activities.

First, in general...

C43

What percentage of the middle school students in the district are involved in...

- % _____ Sports Activities?
- % _____ Fine & Performing Arts Activities?
- % _____ Academic, Academic Enrichment, or School Leadership Activities?
- % _____ Volunteer or Altruistic Activities?

Ok. Now we're going to go through a list of potential groups that may organize recreational opportunities for the middle school youth in this community. First, I'd like to know if the group provides recreational opportunities for middle school youth, and then I'd like to know what types of recreational opportunities it provides.

Here, we are referring to organized recreational opportunities that meet outside of school hours, perhaps in addition to meeting during the school day. For example, if your middle school has a band that only meets during the school day, it would not be included within this category. But, if this group meets outside of school hours to practice or to compete, and an adult leader is also present, then I want to hear about it.

Interviewer note: The chart is on the following page. The interviewer will read-off the organization list one at a time and then ask:

What types of recreation opportunities are associated with this organization?

*Interviewer should then **circle** the activity categories as they are brought up by the respondent. If needed, the interviewer can verbally mention the activity category types.*

*After school programs are included in this section, but they should be noted by **activity type**, not "after school programs" as a major category.*

Organization types that are not present within this community should be crossed out with an "X".

TURN PAGE.

R10 School	R11 YMCA	R12 Boys & Girls Club
(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)
R13 University	R14 Extension / 4-H	R15 Parks & Recreation
(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)
R16 Local Community Center	R17 Boy / Girl Scouts	R18 Churches
(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)

Are there any other organizations that I haven't mentioned that organize recreation opportunities for the middle school youth in this community?

R19 Other	R20 Other	R21 Other
(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)	(a) Sports (b) Fine & Performing Arts (c) Academic-related (d) Special Interest Clubs (e) Community service (f) Other (list)

Now, out of everything that you listed, what would you say are the 5 recreational opportunities (by organization and type of activity) that have the most influence, either positive or negative, in the lives of the middle school students in this community?

If the respondent wants to list all 5 up front, go ahead and write them all down at once. Then, lead the respondent back through the interview to answer the 3 follow-up questions for each activity, one activity at a time.

If any kind of church organized activity is mentioned, also get the names of the 2-3 major churches in the area that are in charge of these programs.

R22

List #1: _____

a) In what ways is this activity influencing middle school youth?

b) Using RESPONSE CARD B, what kind of influence would you say this activity has on middle school students' lives?

1. Very Negative
2. Negative
3. Neutral
4. Positive
5. Very Positive

c) Using RESPONSE CARD C, what would you say is the quality of this program?

1. Extremely Poor
2. Poor
3. Good
4. Extremely Good

TURN PAGE FOR #2

Now, how about the second activity...what would you say is the second activity (by organization and type of activity) that has the most influence, either positive or negative, in the lives of the middle school students in this community?

R23

List #2: _____

a) In what ways is this activity influencing middle school youth?

b) Using RESPONSE CARD B, what kind of influence would you say this activity has on middle school students' lives?

1. Very Negative
2. Negative
3. Neutral
4. Positive
5. Very Positive

c) Using RESPONSE CARD C, what would you say is the quality of this program?

1. Extremely Poor
2. Poor
3. Good
4. Extremely Good

TURN PAGE FOR #3

Now, what would you say is the third activity (by organization and type of activity) that has the most influence, either positive or negative, in the lives of the middle school students in this community?

R24

List #3: _____

- a) In what ways is this activity influencing middle school youth?
- b) Using RESPONSE CARD B, what kind of influence would you say this activity has on middle school students' lives?
1. Very Negative
 2. Negative
 3. Neutral
 4. Positive
 5. Very Positive
- c) Using RESPONSE CARD C, what would you say is the quality of this program?
1. Extremely Poor
 2. Poor
 3. Good
 4. Extremely Good

TURN PAGE FOR #4

Now, what would you say is the forth activity (by organization and type of activity) that has the most influence, either positive or negative, in the lives of the middle school students in this community?

R25

List #4: _____

a) In what ways is this activity influencing middle school youth?

b) Using RESPONSE CARD B, what kind of influence would you say this activity has on middle school students' lives?

1. Very Negative
2. Negative
3. Neutral
4. Positive
5. Very Positive

c) Using RESPONSE CARD C, what would you say is the quality of this program?

1. Extremely Poor
2. Poor
3. Good
4. Extremely Good

TURN PAGE FOR #5

Now, how about the 5th activity...what would you say is the next activity (by organization and type of activity) that has the most influence, either positive or negative, in the lives of the middle school students in this community?

R26

List #5: _____

- a) In what ways is this activity influencing middle school youth?

- b) Using RESPONSE CARD B, what kind of influence would you say this activity has on middle school students' lives?
 - 1. Very Negative
 - 2. Negative
 - 3. Neutral
 - 4. Positive
 - 5. Very Positive

- c) Using RESPONSE CARD C, what would you say is the quality of this program?
 - 1. Extremely Poor
 - 2. Poor
 - 3. Good
 - 4. Extremely Good

Thanks so much. Now to finish, I just have a few open-ended questions about your community, in general.

TURN PAGE FOR OPEN-ENDED QUESTIONS...

R27

Is there anything else that the middle school students do for recreation in your community that doesn't fit in a previously mentioned category? *If necessary, probe with: Any non-adult led recreation (such as movies, pick-up games, arcade, or computer games)?*

R28

What do you feel prevents middle school students from getting involved in organized recreational opportunities?

R29

What do you see as the major resources your community has to offer the middle school youth?

R30

What would you say are things that are unique to your community that make life challenging to the middle school youth in your community?

That was the last question – we're finished! I just want to thank you again for your participation. Your responses will help us understand how different communities involve and engage the middle school youth in their communities, which may help community leaders plan youth programs in the future.

After ending the phone call, record the finish time on the cover page.

APPENDIX C

Follow-up interview protocols for activity experts

PROSPER Partnerships
Recreation Follow-Up Phone Calls
Cover Page

9) Community Name

10) Recreation Organization / Category (Activity Name – if applicable)

(If applicable) School 1:

(If applicable) School 2:

(If applicable) Organization:

11) Date of Phone Call

12) Interviewer

13) Start Time

14) Finish Time

15) Comments

SCHOOL; PARKS AND RECREATION; YMCA; YWCA; BROAD AGENCY; COMMUNITY SPECIFIC / SPORTS

As I mentioned before, these questions refer to the *Sport* Programs you have going on (Competitive and Intramural).

First, let's talk about the competitive (or interscholastic) sports that you have.

Interviewer should answer all questions for each sport before moving on to the next sport. You can list the sport yourself or the interviewee might have a list / order that they want to go through. Be flexible and see how it goes – but know that you know what information we need and how we need it.

- Q. About how many [*insert grades specific to district*] boys and [*insert grades specific to district*] girls participate in your [*recreation activity name*] program?
- Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?
- Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?
- Q. Do participants pay a fee to participate, are they free, or is it a mix?
 - 1. Everyone pays a fee to participate
 - 2. Free for all participants
 - 3. Some students pay a fee while others receive some sort of scholarship

Secondly, do you have any intramural sports?

If yes, interviewer should go through the same questions

(If applicable)
SCHOOL 1:

COMPETITIVE SPORTS FOR BOYS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cheerleading				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Martial Arts				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

COMPETITIVE SPORTS FOR GIRLS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Girls	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cheerleading				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Martial Arts				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

INTRAMURAL SPORTS FOR BOYS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cheerleading				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Martial Arts				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

INTRAMURAL SPORTS FOR GIRLS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Girls	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cheerleading				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Martial Arts				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make this / these leagues happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

(If applicable)
SCHOOL 2:

COMPETITIVE SPORTS FOR BOYS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

COMPETITIVE SPORTS FOR GIRLS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Girls	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

INTRAMURAL SPORTS FOR BOYS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

INTRAMURAL SPORTS FOR GIRLS

Gender	Sport	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Girls	Baseball				1. Free 2. Cost 3. Mix
	Basketball				1. Free 2. Cost 3. Mix
	Cross Country				1. Free 2. Cost 3. Mix
	Football				1. Free 2. Cost 3. Mix
	Golf				1. Free 2. Cost 3. Mix
	Field Hockey / Hockey				1. Free 2. Cost 3. Mix
	Gymnastics				1. Free 2. Cost 3. Mix
	Lacrosse				1. Free 2. Cost 3. Mix
	Soccer				1. Free 2. Cost 3. Mix
	Swimming & Diving				1. Free 2. Cost 3. Mix
	Tennis				1. Free 2. Cost 3. Mix
	Track & Field				1. Free 2. Cost 3. Mix
	Volleyball				1. Free 2. Cost 3. Mix
	Water Polo				1. Free 2. Cost 3. Mix
	Wrestling				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix
	Other				1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make this / these leagues happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

PROSPER Partnerships
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1) Community Name

2) Recreation Organization / Category (Activity Name – if applicable)

(If applicable) School 1:

(If applicable) School 2:

(If applicable) Organization:

3) Date of Phone Call

4) Interviewer

5) Start Time

6) Finish Time

7) Comments

SCHOOL OR PERFORMING ARTS CENTER / FINE AND PERFORMING ARTS

As I mentioned before, these questions refer to the Fine and Performing Arts programs that you have going on.

Interviewer should answer all questions for each specific activity before moving on to the next. You can list the activity yourself, or the interviewee might have a list / order that they want to go through. Be flexible and see how it goes – but know that you know what information we need and how we need it.

- Q. About how many [insert grades specific to district] boys and [insert grades specific to district] girls participate in your [recreation activity name] program?
- Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?
- Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?
- Q. Do participants pay a fee to participate, are they free, or is it a mix?
1. Free for all participants
 2. Everyone pays a fee to participate
 3. Some students pay a fee while others receive some sort of scholarship

SCHOOL 1:

Activity	Gender	Number of Participants	Number of Weeks	Group Practice Number of Hours / Week	Individual Practice # of Students & # of Hours / Week		Cost
Concert Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Marching Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Flag Corps	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Jazz Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Small Ensembles	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Chorus	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Show Choir	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Drama Club	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Theater / Plays	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix

Art Club / Shows	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Various Art Classes	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Other	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Other	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

SCHOOL 2:

Activity	Gender	Number of Participants	Number of Weeks	Group Practice Number of Hours / Week	Individual Practice # of Students & # of Hours / Week		Cost
Concert Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Marching Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Flag Corps	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Jazz Band	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Small Ensembles	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Chorus	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Show Choir	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Drama Club	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Theater / Plays	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix

Art Club / Shows	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Various Art Classes	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Other	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix
Other	Boys						1. Free 2. Cost 3. Mix
	Girls						1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

PROSPER Partnerships
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- 1) Community Name

- 2) Recreation Organization / Category (Activity Name – if applicable)

- 3) Date of Phone Call

- 4) Interviewer

- 5) Start Time

- 6) Finish Time

- 7) Comments

EXTENSION / SPECIAL INTEREST (ALL TYPES OF 4H CLUBS IN THE DISTRICT)

As I mentioned before, these questions refer to what we are calling the Special Interest Programs, or in more every-day lingo – the 4H Clubs, that are active in this district.

Interviewer may need to be flexible – it is possible that there is one or multiple 4h clubs that serve students in the district that we are interested in, or even that there is one club within which the students choose different activities to specialize in, which then might have different time commitments. Activities with different time commitments should be completed in separate charts – unless the respondent has the averages all figured out. The interviewee may want to give you all numbers together, or they may want to give them separately. If numbers are given separately, the interviewer should answer all questions for each club before moving on to the next one.

- Q. About how many [insert grades specific to district] boys and [insert grades specific to district] girls participate in your [recreation activity name] program?
- Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?
- Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?
- Q. Do participants pay a fee to participate, are they free, or is it a mix?
1. Free for all participants
 2. Everyone pays a fee to participate
 3. Some students pay a fee while others receive some sort of scholarship

CLUB 1 / PROJECT 1:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 2 / PROJECT 2:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 3 / PROJECT 3:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 4 / PROJECT 4:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 5 / PROJECT 5:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 6 / PROJECT 6:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 7 / PROJECT 7:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 8 / PROJECT 8:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

CLUB 9 / PROJECT 9:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	4H Clubs			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

LAST QUESTION:

Q. Lastly, I'm wondering, can is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

- 1) Community Name
- 2) Recreation Organization / Category (Activity Name – if applicable)
- 3) Date of Phone Call
- 4) Interviewer
- 5) Start Time
- 6) Finish Time
- 7) Comments

BOY AND GIRL SCOUTS

As I mentioned before, these questions refer to the Boy / Girl Scout Troops that are active in this district.

Interviewer may need to be flexible – it is possible that there is one or multiple troops that serve students in the district that we are interested in. The interviewee may want to give you all numbers together, or they may want to give them separately. If numbers are given separately, the interviewer should answer all questions for each club before moving on to the next one.

Q. About how many [insert grades specific to district] boys and [insert grades specific to district] girls participate in your [recreation activity name] program?

Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?

Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?

Q. Do participants pay a fee to participate, are they free, or is it a mix?

1. Free for all participants
2. Everyone pays a fee to participate
3. Some students pay a fee while others receive some sort of scholarship

TROOP 1 / PROJECT 1:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 2 / PROJECT 2:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 3 / PROJECT 3:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 4 / PROJECT 4:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 5 / PROJECT 5:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 6 / PROJECT 6:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 7 / PROJECT 7:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 8 / PROJECT 8:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

TROOP 9 / PROJECT 9:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Boy Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	
Girls	Girl Scouts			Meeting	1. Free 2. Cost 3. Mix
				Work on Own	

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

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1) Community Name

2) Recreation Organization / Category (Activity Name – if applicable)

Church 1:

Church 2:

Church 3:

Church 4:

Church 5:

3) Date of Phone Call

4) Interviewer

5) Start Time

6) Finish Time

7) Comments

CHURCH / SPECIAL INTEREST (YOUTH GROUPS; RELIGIOUS EDUCATION)

As I mentioned before, these questions refer to what we are calling the Special Interest Programs, or in more every-day lingo – the youth group and religious education activities, that you have going on.

Interviewer should answer all questions for each activity type before moving on to the next one.

- Q. About how many [*insert grades specific to district*] boys and [*insert grades specific to district*] girls participate in your [*recreation activity name*] program?
- Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?
- Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?
- Q. Do participants pay a fee to participate, are they free, or is it a mix?
1. Free for all participants
 2. Everyone pays a fee to participate
 3. Some students pay a fee while others receive some sort of scholarship

CHURCH 1:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix
Girls	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix

CHURCH 2:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix
Girls	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix

CHURCH 3:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix
Girls	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix

CHURCH 4:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix
Girls	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix

CHURCH 5:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix
Girls	Youth Group				1. Free 2. Cost 3. Mix
	Religious Education				1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

PROSPER Partnerships
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- 1) Community Name

- 2) Recreation Organization / Category (Activity Name – if applicable)

- 3) Date of Phone Call

- 4) Interviewer

- 5) Start Time

- 6) Finish Time

- 7) Comments

AFTER SCHOOL PROGRAMS / CLUBS / ACTIVITIES

As I mentioned before, these questions refer to what we are calling the After School Programs that are you have going on for this district.

- Q. About how many [*insert grades specific to district*] boys and [*insert grades specific to district*] girls participate in your [*recreation activity name*] program?
- Q. About how many weeks during the school year do they participate in this activity during the non-school hours (before or after school, evenings or weekends)?
- Q. On average, about how many hours per week do they meet in the non-school hours, when they activity is in session?
- Q. Do participants pay a fee to participate, are they free, or is it a mix?
 - 1. Free for all participants
 - 2. Everyone pays a fee to participate
 - 3. Some students pay a fee while others receive some sort of scholarship

After School Club / Program / Activity 1:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys					1. Free 2. Cost 3. Mix
Girls					1. Free 2. Cost 3. Mix

After School Club / Program / Activity 2:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys					1. Free 2. Cost 3. Mix
Girls					1. Free 2. Cost 3. Mix

After School Club / Program / Activity 3:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys					1. Free 2. Cost 3. Mix
Girls					1. Free 2. Cost 3. Mix

After School Club / Program / Activity 4:

Gender	Activity	Number of Participants	Number of Weeks	Number of Hours / Week	Cost
Boys					1. Free 2. Cost 3. Mix
Girls					1. Free 2. Cost 3. Mix

LAST QUESTION:

Q. Lastly, I'm wondering, can is there another organization that you co-sponsor or collaborate with to make these activities happen? Or, do you rent or use space from others?

INTERVIEW CLOSE:

That's all I needed to know! Do you have any questions for me before I go? I'd just like to thank you again for your time (this morning / afternoon). We really appreciate it, and hopefully your responses will help us understand the influence of community and school recreation programs, and will help us plan programs and community activities in the future.

APPENDIX D

Decision process for the most influential structured activities

It was necessary to reduce the data obtained in the “Top 5” section of the first Activity Expert interview (Appendix B) in order to create the *time spent in structured activities* scale. The data was reduced by consensus that was led by a numerical process, which is described below.

General Rules:

- 1) Delete from consideration any activity that was mentioned that is unstructured and explicitly social in nature (primarily dances)
- 2) An activity has to be mentioned by more than one person to be considered

Consensus Building led by numerical process

- 1) All activity types that were mentioned in the “Top 5” section of the Recreation Activity Interview were input into a spreadsheet that was organized by community (see following pages for documentation), and two scores were created:
 - a. Weighted score (5-4-3-2-1 in order of first to last)
 - b. Equally weighted score (0 vs. 1 – get 1 point if listed at all)
- 2) The following guidelines were developed by the researchers during this process:
 - a. At “clear top 3,” where the top 3 activities on the weighted score side were the same as the top 3 activities on the equal weighted side
 - b. If there was a tie in the top 3, the higher weighted score and the consistency of the interview rankings were considered

Three researchers first worked independently to choose the top 3 in each community. Then, the researchers came together to discuss their decisions. Out of the 28 communities:

- 1) 18 communities (64%) had 100% agreement among the three researchers: they either had a clear top 3 (10 communities), or the higher weighted score or consistency of interviewee ratings was used (8 communities)
- 2) Two out of three researchers agreed on 7 communities (25%), and after discussion the 3rd researcher agreed with the majority decision. The same guidelines were considered.
- 3) The last three communities (11%) required more discussion
 - a. Ft. Madison => decided to combine the Boy & Girl scouts – same as in all other communities
 - b. Littlestown => collect information on 5 activities, develop scale based on who the lead organization is [end result: basketball is for younger kids, nixed in data collection / football and baseball/little league are organized by the same organization and can count as one / school FPA then, is the third activity]
 - c. Marshalltown => a complete tie for 3rd. In this case, information was collected for both activities that tied for third, and the activity with the higher number of participation hours was used in creating the *time spent* scale.

APPENDIX E

Table comparing National Statistics to the present community sample averages

Construct	National Rates / Comparison	PROSPER Community Sample Average	PROSPER Student Sample
Percent White	75.1%	95.6%	85.4%
Residential Instability	45.9%	37.65%	na
Families living below federal poverty standard	9.2%	6.81%	na
Rate of Violent Crimes (per 100,000)	465.5	248.73	na
Rate of Property Crimes (per 100,000)	3517.1	2617.19	na
Dual-parent Household	68.0%	77.3%	77.0%
Population Density	na	372.99	na
Population Density of Urbanized Area	1000 / sq. mile	na	na
Maximum Population Density Criteria of Rural	2000 / sq. mile	na	na
Minimum Population Density Criteria of Urban	3000 / sq. mile	na	na
Average Population Density of True Urban Centers	5000 / sq. mile	na	na
8 th Grade Alcohol Use (Drunk more than a few sips)	41.0%	45.1%	43.8%
8 th Grade Cigarette Use (Smoked a cigarette)	25.9%	31.9%	30.7%
9 th Grade YRBS: Been in a physical fight	43.5%	na	na
8 th Grade Aggressive Behaviors	na	32.7%	32.9%
9 th Grade YRBS: Property stolen or damaged	33.9%	na	na
8 th Grade Destruction of Property	na	21.3%	21.5%

Overall, community descriptive statistics indicate that the PROSPER community sample is less diverse, less mobile, less impoverished than a representative United States sample (Census, 2000), and more PROSPER students live in dual-parent households (Population Resource Center, 2004). Additionally, the average violent and property crime rates in the PROSPER community sample are lower than national crime rates (Federal Bureau of Investigation, 2004). Lastly, the PROSPER community sample fits well within what would be considered rural and small town communities (Census, 2000; Child Language Research Center, 1994; Standard & Poor's, 2005).

Rates of substance use are slightly higher than national rates (Johnston et al., 2006), whereas the comparability of rates of delinquent behavior are more difficult to establish (CDC, 2006).

VITA

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EDUCATION

- December 2006 Ph.D. Human Development and Family Studies
Pennsylvania State University, University Park PA
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HONORS & AWARDS

- 2003 – 2004 Bennett Prevention Research Fellow, Pennsylvania State University

RESEARCH INTERESTS

- ❖ Community collaboration for the pursuit of quality youth prevention and health promotion programming
- ❖ Main and interactive effects of community, family, peer, and individual risk and protective factors of substance abuse and violence
- ❖ The application of Geographic Information Systems to community prevention and evaluation efforts
- ❖ The impact of structured activities on youth development
- ❖ Longitudinal developmental methodology and measurement issues relevant to community-based prevention and the evaluation of programs
- ❖ Capacity-building of community leaders in prevention research

PUBLICATIONS

- Chilenski, S.M., Greenberg, M.T., & Feinberg, M. (*in press*). Community readiness as a multi-dimensional construct. *Journal of Community Psychology*.
- Feinberg, M.E., Chilenski, S.M., Greenberg, M.T., Spoth, R.L., & Redmond, C. (under review). Community and team member factors that influence the operational phase of local team partnerships in prevention: The PROSPER project.
- Greenberg, M.T., Feinberg, M.E., Chilenski, S.M., Spoth, R.L., & Redmond, C. (under review). Community and team member factors that influence the early phases of local team partnerships in prevention: The PROSPER project.