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A Longitudinal Study of Rural Youth Involvement in Outdoor Activities throughout Adolescence: Exploring Social Capital as a Factor in Community-Level Outcomes

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Abstract

This study examined youth participation in both organized and unstructured outdoor activities throughout adolescence, in a rural region in the northeastern United States. Survey data were collected at 7th, 8th, 10th, and 12th grade from 186 respondents across the region and was analyzed explore the relationship between antecedent predictors, outdoor activity participation, and outcomes related to developmental and educational achievement. Higher outdoor activity involvement was linked with positive outcomes but was also associated with other known predictors of development success including parents' educational level, marital status, and involvement in future planning. The concept of *social capital* helps to explain overall patterns in the data, to broaden understanding of social dimensions of outdoor activity involvement, and to suggest directions for future research on positive youth development through outdoor activity.

Keywords: *outdoor recreation, rural education, positive youth development, social capital, outdoor education*

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Adolescents spend 40% to 50% of their waking hours in discretionary activities, representing an important context for youth development (Verma & Larson, 2003). While activity involvement has been associated with positive youth development (PYD) in recent years, organized and unstructured *outdoor* activities have been acknowledged as especially promising avenues for PYD (Mainella, Agate, & Clark, 2011; Sibthorp, 2010). In the youth development literature, however, outdoor activities often are undifferentiated from other options like academic clubs and sports, with researchers emphasizing more generic characteristics such as adult supervision, program structure, and skill-building opportunities (Mahoney, Larson, Eccles, & Lord, 2005). Conversely, many outdoor education researchers highlight the distinctiveness of outdoor settings, yet studies are frequently limited to brief time periods or relatively specialized interventions (Neill, 2002); clear links between outdoor activity involvement over time and the achievement of key long-term developmental tasks are comparatively underresearched.

The present study aimed to address some of the gaps in these literatures by examining patterns of participation in outdoor activity and their relationship to important developmental outcomes across different participation rates. Analysis was based on a longitudinal dataset from a study of rural youths in economically precarious but naturally resource-rich communities in northern New Hampshire (Tucker, Cox, Sharp, Van Gundy, Rebellon, & Stracuzzi, 2013). The three main objectives of this study were (1) to identify profiles of youths who fit different patterns of participation in both organized and unstructured outdoor activities over time, (2) to explore antecedent factors that predict the profiles that emerge from the data, and (3) to explore differences in developmental outcomes associated with the profiles of participation that were identified. Variables were selected from the PYD and outdoor education literatures, and from recent studies of educational attainment in rural communities, especially those that emphasize social capital (Bourdieu, 1986; Coleman, 1988).

Outdoor Activity and Positive Youth Development

The role outdoor activity plays in youth development is a topic that has preoccupied many social reformers and educators throughout the 20th century (Kaplan & Kaplan, 2002; Loynes, 2008; Quay & Seaman, 2013; Smith & Knapp, 2010). But it is the 2007 publication of Richard Louv's book, *Last Child in the Woods*, in which children's time in nature is claimed to contribute to positive development, that arguably sparked the most recent widespread interest in the developmental role of the outdoors. In this influential text, Louv decried both the loss of natural landscapes and the declining tendency for children to enjoy unstructured leisure time in natural settings (Louv's alarm is not unfounded. See Kellert; Pergrams & Zaradic, 2008). *Last Child in the Woods* catalyzed a social movement to end "nature deficit disorder" by restoring the outdoors as a uniquely beneficial developmental setting (see Charles, Louv, Bodner, & Guns,

2008). Louv's book contained several explicit and implicit claims about the developmental domains that were likely to be affected by outdoor participation, including creativity, health, attention, self-confidence, social relationships, and attachment to place. This movement—and the outcomes it champions—continue to garner attention in the popular media; an article recently featured on the *Children in Nature Network* website references a growing body of research showing that even minimal contact with nature can lead to cognitive and academic gains (Musolf, 2014).

Similar developmental outcomes to those Louv specified have been studied extensively in relation to organized outdoor programs such as Outward Bound. Researchers in this area have focused considerable attention on self-concept outcomes such as leadership, self-efficacy, locus of control, and personality attributes, as well as psychosocial domains including cooperation, social competence, and interpersonal communication (Hans, 2000; Hattie, Marsh, Neill, & Richards, 1997). Relatively few studies, however, situate these attributes in the context of broader, longer-range developmental processes or achievements. In an early cross-sectional study, Conrad and Hedin (1981) linked involvement in outdoor programs to a range of individual benefits including those that contribute to educational success. A more recent research review by Rickinson et al. (2004) echoes the previous focuses on “self” constructs including “attitudes, beliefs, self-perceptions” (p. 6), and, like Conrad and Hedin's classic study, finds (albeit equivocally) contributions made by outdoor programs to educational outcomes.

Widmer, Duerden, and Taniguchi (2014) recently reported a study focusing more directly on the links between outdoor recreation participation and academic outcomes, finding summer adventure program participation to be significantly related to academic attitude and motivation and to mitigate summer “learning loss.” The authors attributed these outcomes to the mechanism of generalized self-efficacy (Bandura, 1997), yet acknowledged that their findings must be interpreted in light of the brief timescale of their study; they called for studies that examine the relationship between outdoor activity participation and academic outcomes on a longer-term basis.

In sum, considerable research on organized outdoor programs demonstrates a focus on self-related variables, yet the contribution of these outcomes to important areas such as educational attainment, future orientation, and relationships to community and family has been studied on a far more limited basis. These domains not only point to leading developmental processes throughout adolescence (Polivanova, 2006), how their relationship is shaped within out-of-school programs is increasingly recognized as crucial for understanding societal concerns like economic inequality (Weis & Dimitriadis, 2008). Moreover, the social dimensions of outdoor activity involvement are commonly treated in terms of interpersonal attitudes, leaving broader social processes

that are known to shape developmental pathways largely unaddressed and under-theorized.

An emerging literature also indicates interest in linking outdoor activity and the disciplinary perspective of PYD and “positive psychology” more generally (Berman & Berman, 2005; Sheard & Golby, 2006). PYD is a specific framework that focuses on youth strengths and directly emphasizes the “bidirectional linkage between the individual and the context” (Council, 2006, p. 29; Widmer et al., 2014). The inclusion of setting- and community-level factors in analyses is a distinguishing feature of PYD research. PYD scholars seek especially to identify those features of the activity environment that contribute to individual development. These include “structure, adult supervision, and an emphasis on skill building” as well as regular meetings, clear expectations and rules, and organized, goal-oriented tasks (Mahoney et al., 2005, p. 4). These features have been associated with outcomes in the following domains:

- (a) acquiring habits of physical and psychological health,
- (b) forming a positive orientation toward school and achievement,
- (c) getting along with others including peers and adults, and
- (d) acquiring appropriate value systems about rules and conduct across different contexts. (Mahoney et al., 2005, p. 6).

Mahoney et al. also write that, as a function of modern societal conditions, “new tasks such as identity formation, personal mastery/efficacy, intimacy with peers, and preparation for the transition to adulthood and postsecondary education or work became increasingly important across adolescence” (p. 6). These developmental tasks orient researchers to the broader domains from which particular variables should be specified and relationships examined, encouraging a move away from research that examines changes in specific psychological attributes in a standalone fashion.

Recognizing the apparent compatibility between sought-after outcomes of outdoor programs and the interests and methods of the PYD movement, scholars such as Sibthorp (Sibthorp, 2010; Sibthorp & Morgan, 2011), Duerden (M. Duerden, 2010; M. D. Duerden, Taniguchi, & Widmer, 2012), Mirkin (2013), Larson (2000), and Costello et al. (2000) have discussed participation in organized outdoor programs as compelling venues for both understanding and promoting PYD processes. For example, Sibthorp and Morgan argue that outdoor adventure courses are “prototypical” of the structures recommended by PYD advocates: “Adventure-based programs excel in most of these areas. Supportive relationships, empowerment, structure, and skill building are doctrine for most adventure programs” (p. 108). Other researchers have highlighted comparable features in organized programs such as 4H and Future Farmers of America (Larson, Hansen, & Walker, 2005; Lerner & Lerner, 2013), and articulate similar outcomes. Finally, like Richard Louv, authors such as Mainella,

Agate, and Clark (2011) and Caldwell and Witt (2011) point to the importance of considering unstructured personal leisure and play, in part because a considerable amount of time in childhood and adolescence is spent pursuing activities that are not subject to adult structure and supervision, but nonetheless shape development in important ways. This emerging interest area urges a more comprehensive program of research on the role of outdoor activity in youth development than what has been pursued to date, and which helps understand the relative contributions of activity involvement in both organized *and* unstructured outdoor settings.

Although still in its nascent stage, this line of inquiry advances existing research approaches to research on outdoor activity involvement in a number of useful ways. First, in the outdoor experiential education literature, individual psychological and social psychological variables are often measured in isolation and without reference to the larger developmental processes in which they are embedded and to which they contribute (for a recent example, see Hayhurst, Hunter, Kafka, & Boyes, 2013). As Sibthorp and Morgan (2011) write: “One area where adventure programs do not align well with literature on positive youth development is connecting the program with families and communities” (p. 111). Widmer, Duerden, and Taniguchi’s 2014 study on outdoor adventure programs and academic self-efficacy is an exception, but even this study was limited in scope and duration. The framing of PYD as a broader interest area encourages further studies in which researchers may attempt to link discrete program outcomes with longer range developmental tasks, such as the way educational expectations are shaped by family structures and processes, in addition to sporadic or ongoing involvement in specific organized or unstructured leisure settings.

Second, social dimensions of involvement are often conceptualized as personal attitudes toward social phenomena (e.g., group cohesion, teamwork), leaving broader family- and community-level processes largely unaddressed. Duerden and Witt (2010) argue: “It is a common oversight to focus solely on the impact of individual programs on participants without considering the influence of other contexts that also impact these same youths” (p. 110). Taking a longer range, community-level approach encourages greater sensitivity to influential contextual factors and ostensibly helps overcome methodological problems often associated with more directed and targeted studies on youth programs, which can have a “confirmatory bias” (Phillips, 2014). Likewise, focusing broadly on outdoor activities—including unstructured outdoor experiences in a variety of settings—can address the potential structure bias that tends to characterize both the PYD and the outdoor education literature (see also Kellert, 2002).

Finally, PYD scholars consistently stress the importance of an ecological perspective, which was a prominent interest in the present study. As Seaman (2009) argued, concerns about *evidence* of the effects of outdoor activity in-

volvement should be balanced by a commitment to *authenticity* in the identification of a problem, the design of a study, and the interpretation of its results. In other words, neither activity involvement nor developmental outcomes should be considered in a vacuum, but rather their relationship should be examined in light of the specific challenges, opportunities, and conditions that exist within particular ecological niches (see also Bronfenbrenner, 1989; M. Duerden, 2010). For rural youths, this means resolving the perennial conflict between remaining in geographic areas with strong social bonds but limited postsecondary educational and vocational opportunities, versus pursuing educational goals elsewhere, a decision with profound consequences for one's social relationships, economic mobility, and identity (Crockett, Shanahan, & Jackson-Newsom, 2000). This dilemma is particularly acute in northern forest regions, where communities have been impacted by declining extraction and manufacturing industries, and are trying to grow new economic sectors such as outdoor tourism (see Hamilton, Hamilton, Duncan, & Colocousis, 2008).

Rural Youth Development, Education, and Social Capital

Citizens in rural communities are often characterized—even by themselves—as “being independent, practical, plain, broadly skilled, and close to nature because of outdoor activities” (Crockett et al., 2000, p. 47). In addition, social ties are believed to be particularly strong in rural communities, and these ties “facilitate development by bringing adolescents into a wider network of supportive adults and by promoting participation in youth activities that are valuable socialization experiences” (p. 55). Examples include productive work in household economies and involvement in civic or school-related clubs as a main leisure time activity. These same tight kinship and social networks, however, can be experienced by some youths as constricting their range of acceptable identities, and could diminish the perceived value of postsecondary education; these dual factors can impose limitations on postsecondary expectations and educational achievement of rural youths, unless program interventions are configured to help youths develop strong community ties while also imagining expansive social futures. Thus, a central aspect of rural youth development involves reconciling strong and influential community attachments with individual desires or needs to pursue life goals elsewhere (Crockett et al., 2000; Cuervo & Wynn, 2012) and the way youths reconcile these issues shapes their future orientations and educational outcomes.

One way the relationship between community networks and rural youth development has been conceptualized and studied is through the framework of *social capital* (Adedokun & Balschweid, 2008; Byun, Meece, Irvin, & Hutchins, 2012). Social capital can be defined in the broadest sense as “relationships grounded in structures of voluntary association, norms of cooperation, and attitudes of social trust and respect that facilitate coordination and cooperation of mutual benefit” along with “advantages and opportunities accruing to peo-

ple through membership in certain communities” (Hall, 2004). Applying the concept of social capital to outdoor education, Beames and Atencio (2008) acknowledge that definitions of social capital diverge depending on its theoretical tradition of origin, and therefore must be carefully specified in particular studies (see also Tzanakis, 2013). Beames and Atencio argue against the temptation to associate social capital with improved interpersonal attitudes and instead encourage researchers to use it to examine “the development of social relations that benefit both the individual and their broader communities” (p. 99). The conception of social capital best suited to this kind of analysis, they contend, is one that helps understand community-level patterns of diffusion and realization of developmental outcomes. This conceptualization is most consistent with Coleman’s (1988) and Bourdieu’s (1986) theories, and although these differ somewhat—as we discuss later—it is also how the rural education literature has examined educational attainment, to which we now turn.

Crockett, Shanahan, and Jackson-Newsom’s (2000) recommendation to highlight social capital as a factor in rural youth development was pursued comprehensively by Adedokun and Balschweid (2008) and Byun et al. (2012). In their review of the literature on rural educational attainment, Adedokun and Balschweid found outcomes to be not only shaped by structural conditions (socioeconomic status, family size, geographical dispersion), but also to the extent community members access and participate in networks of voluntary association. These networks—facilitated, for example, by involvement in civic organizations such as Future Farmers of America and 4H—can, on the one hand, enable youth encounters with mentors who promote different expectations and identities, while on the other hand, bind youths even more tightly to local social relationships, making it harder to imagine leaving. According to Adedokun and Balschweid, limited research “has examined the influence of the social interactive processes within rural communities on the educational achievements and aspirations of rural adolescents” (p. 8). This includes “how the relationship between community social interactive processes and educational outcomes might vary across different socioeconomic groups in rural communities” (p. 9). In approaching the current study, we saw outdoor activity involvement as a potentially important venue for these socially interactive processes to occur.

In a nationwide study of 5,663 survey respondents, (Byun et al., 2012) examined the extent to which educational aspirations were influenced by social capital. Using Coleman’s and Bourdieu’s formulations of the concept, the authors focused on “the structural and process components of social capital that are associated with rural youths’ educational aspirations” (p. 361). *Structural* components included parents’ marital status, family size, and number of siblings dropping out of school. *Process* components focused on parental expectations for college attendance and talk with parents about college and career options. Byun et al. also examined factors such as perception of financial hard-

ship, parental education, and gender. Their study found interactions between family structure and process and school influences, namely that youths from two-parent, educated households held higher educational aspirations. A separate national study (Martin, 2012) found similar results, however, it also found participation in organized leisure activity to be a factor in the transmission of educational advantage across generations, with family education level having a significant effect on involvement.

Recent research on rural youth development stresses social capital as an important dimension of educational attainment, yet also suggests that interactions between family conditions and activity involvement exert a strong influence on the distribution, access, and effects of social capital. Therefore, one might expect outdoor activity involvement in rural communities to be a mediator between family conditions, social capital, and educational expectations and attainment. Herein lies the purpose of the present study—to begin to address gaps in the existing literatures on outdoor education and rural youth development by examining relationships between adolescent activity involvement, antecedent predictors of participation levels, and variations in developmental outcomes in behavioral, personal growth, educational, future orientation, and community domains.

Methods

The current study used exploratory longitudinal methods along with person-centered analytic strategies. This approach allowed us to examine relationships between key indicators at the aggregate level and also study variation between groups of adolescents who differ in the extent of their participation in outdoor activity, both organized *and* unstructured. This strategy was meant to communicate with concentrations in the extant research, while also revealing variation in a way that helps understand how long-term patterns of outdoor activity participation relates to other developmental influences at the individual, family, and community level.

Data for the present analysis was drawn from a larger study that surveyed youths across all public schools in the rural, northernmost New Hampshire county at 7th grade, 8th grade, 10th grade, and 12th grade from 2008–2013. Analyses included only respondents who completed the survey at all time points ($n=186$), representing 49% of all area youths who advanced from 7th to 12th grade during this period. Person-centered analyses on activity involvement items across the four waves of data revealed patterns of participation in organized and unstructured outdoor activities, what we call *participant profile groups*.

Core variables were as follows:

- **Participant profiles** were calculated by including responses (Yes/No) to participation in organized (e.g., 4-H, Scouts) and unstructured (e.g., hik-

ing, fishing, skiing, snowmobiling) outdoor activities at 7th, 8th, 10th, and 12th grades.

- **Antecedent predictors** were calculated by including the following wave 1 (7th grade) variables: adolescent gender; parents' level of educational attainment; perception of financial strain; parents' marital status; and distance (in minutes) from school. Analysis also included the aggregate scores of waves 3 and 4 (10th and 12th grade) items concerning the extent to which youths report having discussed future educational and career plans with their parents.
- **Developmental outcomes** were calculated by including the following variables at wave 4 (12th grade): school connectedness; school achievement; community attachment; commitment to the area; community voice; expectations for future; appreciation for the outdoors; perception of future opportunity; substance use; and the self-concept domains *mastery* and *self-esteem*.
- **Analytic methods.** Person-centered strategies allow for identification and analysis of different patterns across youth who vary in their extent of activity participation. These techniques have become common in the youth activity literature as they enable insights into the person/context relationship that is central to PYD research, and consistently indicate that patterns of higher activity participation are related to positive educational and social outcomes (Bohnert, Fredricks, & Randall, 2010; Ferrar, Chang, Li, & Olds, 2013; E. H. Sharp, Tucker, Baril, Van Gundy, & Rebellon, 2014). In the present study, cluster analysis in SPSS was used to group youths according to consistency of involvement in organized and unstructured outdoor activity at four time points throughout adolescence so that comparisons between youths could be conducted. Correlational techniques were used to assess the relationship between outcomes that are frequently studied in the outdoor education literature and longer-term developmental outcomes of interest here. Finally, chi-square and ANOVA techniques were used to evaluate between-group differences in antecedent and outcome variables.

Results

Participant Profile Groups

Two-step cluster analysis yielded a three-group solution that met the quality criteria for "good" fit: (1) Intermittent to no involvement in any outdoor activities (36%, $n=62$); (2) Consistently involved in unstructured outdoor activities with little to no involvement in organized outdoor activities (41%, $n=72$); and (3) Consistently involved in both organized and unstructured outdoor activities (23%, $n=40$). Six percent ($n=12$) of cases were excluded due to missing data.

Within-Group Characteristics

Patterns in the aggregate data show relatively consistent participation in unstructured outdoor activities from grades 7–12, dropping three percent from 81% to 78% over this period. Notably, a national survey of youth who passed through this age range during this same period show a decline from 64% to 60% (Foundation, 2013), indicating that the rural youth in this sample both participated at a rate roughly 20% higher than youth elsewhere, and also maintained slightly more steady involvement as they aged. This finding is consistent with prior speculations in the literature on the role of outdoor activity in defining rural time use. Organized outdoor activities, however, involved only a minority of youth in 7th grade and this dropped 50% by 12th grade. Table 1 presents percentages of youth involvement from 7th-12th grade overall and by gender.

Table 1

Percentages of Youth Involved in Both Organized and Unstructured Outdoor Activity, 7th–12th Grades

	Unstructured				Structured			
	7 th grade	8 th grade	10 th grade	12 th grade	7 th grade	8 th grade	10 th grade	12 th grade
Overall	81%	83%	85%	78%	20%	17%	11%	8%
Girls	77%	78%	86%	75%	16%	17%	9%	6%
Boys	80%	87%	83%	82%	23%	18%	12%	10%

Table 2 presents means and standard deviations for each of the three groups in numbers of years (in the four waves) in which outdoor activity involvement was reported.

Table 2

Within-Group Distributions of Reported Involvement in Outdoor Activity (In Years)

	Group 1: Intermittent to no involvement		Group 2: Consistent involvement in unstructured only		Group 3: Consistent involvement in both	
	Mean	SD	Mean	SD	Mean	SD
Structured	.06	.25	0	0	2.45	1.06
Unstructured	2.23	.89	4.0	0	3.63	.70

Antecedent Predictors of Group Membership

After examining rates of participation within each of the groups, we conducted chi-square analyses and found that gender did not significantly predict group membership ($\chi^2 = 1.303, p = .521$). This finding was somewhat surprising given that significant differences in overall activity participation (afterschool programs, sports, civic organizations, music clubs) in this sample were found between males and females in another study (Sharp, 2010). In that study, females were significantly more likely than males to engage in high levels of activity, with 86% of girls indicating average or high levels of participation, and 86% of boys indicating average or below average levels. These differences suggest that outdoor settings might be more attractive to boys than other available activities, a point to which we return at the end.

Table 3

*Percentages of Females and Males in Each Group**

	Group 1: Intermittent to <u>no involvement</u>	Group 2: Consistent involvement <u>in unstructured only</u>	Group 3: Consistent <u>involvement in both</u>
Female (n=91)	40%	39%	22%
Male (n=83)	31%	45%	24%

Between group differences for other antecedent predictors of involvement (7th grade) included: No significant difference in cluster placement for distance to school ($F = .384, p = .682$) or adolescent perception of financial strain ($F = 1.049, p = .353$). However, youth with parents who were still married were more likely to be members of both groups 2 and 3 ($\chi^2 = 9.801, p = .002$) and less likely to be in group 1 ($\chi^2 = 9.408, p = .002$), compared to adolescents with unmarried parents. In addition, parents' educational attainment was significantly associated with the activity clusters ($F = 7.815, p = .001$); adolescents in group 1 had parents with lower levels of educational attainment compared to groups 2 and 3 (Tukey post hoc, $p = .001, .007$, respectively). Groups also differed significantly in the extent to which members discussed future educational and career plans with parents throughout high school ($F = 5.964, p = .003$), with adolescents in group 1 ($M=2.20, SD=.87$) scoring significantly lower than group 2 ($M=2.7, SD=.66$) but not group 3 ($M=2.35, SD=.82$) (0–4 scale; Tukey post hoc, $p = .003$).

Developmental Outcome Areas

We performed two analyses on developmental outcome areas. First, bivariate correlations were sought between all variables of interest in order to determine the relationship between traditional variables—particularly self-concept

domains—and other, longer range developmental tasks that bear on youths' social and educational futures. Table 4 presents correlations among key variables.

Second, ANOVA was used to assess between-group differences on developmental outcomes at 12th grade. Significant differences were found in several outcome areas that reflect key developmental tasks of adolescents. These include educational achievement and expectations, perception of future opportunity, community attachment, appreciation for the outdoors, and substance use (marijuana). Trends were in the anticipated direction, with greater outdoor activity participation being associated with more favorable outcomes. Table 5 shows differences in developmental outcome areas.

As can be seen in Table 5, members of group 1 scored significantly lower than groups 2 and 3 on several notable indicators of developmental achievement, including grades, expectations to finish college, perception of future opportunity, community attachment, appreciation for the outdoors, and significantly higher on marijuana use.

Discussion and Implications

This study sought to examine relationships between outdoor activity involvement throughout adolescence and important developmental outcomes in educational, community, self-concept, and behavioral domains among a sample of rural youths. We emphasized educational outcomes because of the consequences of schooling on rural youths' future opportunities for material security in economically declining areas, and in their decisions to stay or leave. The study is unique in its longitudinal design as well as its community-level analysis, in which youth profiles were calculated based on patterns of participation over time, and in which differences were sought between profile groups on acknowledged developmental predictors and outcomes. The present study therefore offers an initial look at the long-term effects of outdoor activity involvement on youth development in naturally occurring conditions, as urged by recent scholarship.

The results can be interpreted in several ways, some of which support long-running claims, whereas others challenge conventional research interests and approaches. First, correlations at the aggregate level show strong positive relationships between traditional areas of interest—namely self-concept domains—and educational, community, and behavioral outcomes. These findings can be interpreted to validate previous findings from shorter-term studies, indicating that outdoor activity involvement is associated with positive developmental outcomes in school achievement, future aspirations, and community attachment, through mechanisms such as self-esteem and mastery (Hattie et al., 1997; Sibthorp, 2003; Walsh & Golins, 1976). Alternatively, the near equivalence of self-concept domain scores across groups at grade 12 suggests that self-concept as a discrete outcome might not provide as sure a foundation

Table 4

Correlations between Developmental Outcome Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. School belonging													
2. Grades	.331**												
3. Expect to get a secure job	.200**	.223**											
4. Expect to finish college	.270**	.204**	.360**										
5. Commitment to the area	.145	-.041	.114	-.038									
6. Perception of future opportunity	.449**	.529**	.350**	.377**	.016								
7. Sense of voice	.418**	.140	.175*	.148*	.385**	.152*							
8. Community attachment	.530**	.258**	.292**	.276**	.360**	.363**	.656**						
9. Appreciation for the outdoors	.211**	.193**	.130	.143	.259**	.202**	.199**	.431**					
10. Self-esteem	.358**	.166*	.156*	.155*	-.014	.411**	.159*	.235**	.054				
11. Mastery	.281**	.116	.088	.104	-.092	.469**	.036	.191**	.067	.458**			
12. Alcohol use	-.115	-.192**	-.134	-.122	.055	-.143	-.203**	-.197**	-.060	-.102	-.117		
13. Cigarette use	-.199**	-.247**	-.075	-.282**	-.085	-.308**	-.169*	-.234**	-.127	-.202**	-.216**	.326**	
14. Marijuana use	-.245**	-.271**	-.228**	-.195**	-.122	-.343**	-.276**	-.352**	-.145	-.204**	-.187*	.443**	.622**

Note: ** $p \leq .01$; * $p \leq .05$

Table 5

Means (and standard deviations) for Adolescent 12th Grade Developmental Outcomes by Profile Group^a

Outcomes at 12 th grade	Activity Profile Group			F-value
	1 = Intermittent to no involvement in either (N=62)	2 = Consistently involved in unstructured only (N=72)	3=Consistently involved in both (N=40)	
1. School connectedness ^a	3.52 (1.31)	3.84 (1.24)	3.96 (1.14)	1.82
2. Grades	6.68 (1.90)	7.41 (1.14)	7.35 (1.48)	4.33* >1
Future orientation outcomes				
3. Expect to get a secure job	5.23 (1.21)	5.53 (0.79)	5.40 (0.87)	1.62
4. Expect to finish college	5.02 (1.55)	5.18 (1.72)	5.80 (0.46)	3.69* >1
5. Commitment to the area	2.33 (1.31)	2.59 (1.23)	2.80 (1.35)	1.62
6. Perception of future opportunity	3.82 (0.73)	4.12 (0.57)	4.09 (0.58)	4.44* >1
Community orientation outcomes				
7. Sense of voice	1.08 (0.73)	1.26 (0.73)	1.46 (0.91)	2.77
8. Community attachment	1.53 (0.73)	1.85 (0.73)	1.88 (0.68)	4.15* >1
9. Appreciation for the outdoors	1.22 (0.78)	1.83 (0.78)	1.89 (0.80)	13.0* 1<2,3
Self-concept outcomes				
10. Self-esteem	2.31 (0.59)	2.34 (0.08)	2.34 (0.59)	0.05
11. Mastery	2.22 (0.48)	2.22 (0.49)	2.28 (0.54)	0.25
Behavioral outcomes				
12. Alcohol use	1.35 (1.48)	1.63 (1.60)	1.30 (1.40)	0.85
13. Cigarette use	1.33 (2.34)	0.82 (1.85)	0.73 (1.77)	1.45
14. Marijuana use	1.62 (2.43)	0.83 (1.67)	0.75 (1.68)	3.42* 1<2,3

Note. *p ≤ .05. ^aSchool connectedness variable ranges from 0 = *strongly disagree* to 6 = *strongly agree*. Grades variable ranges from 1 = *mostly F's* to 9 = *mostly A's*. Future expectations variable ranges from 0 = *not at all likely* to 6 = *very likely*. Perception of opportunity variable ranges from 1 = *strongly disagree* to 5 = *strongly agree*. 0 = *strongly disagree* to 3 = *strong agree*. Behavioral variables range from 0 = *no times* to 6 = *nearly every day*.

for claims about consequential long-term developmental achievements as researchers imagine. If that were the case, one would expect groups to differ in self-concept areas according to consistency in outdoor activity participation over time. These findings, at the very least, indicate a need to further understand the relationship between short-term program outcomes and long-term developmental processes, and perhaps to justify a continued focus on self-concept domains.

Although positive correlations were found between self-concept domains and educational, community, and behavioral outcomes, the equivalence between groups questions the prevailing logic connecting outdoor activity participation and long-term developmental achievements. This logic is demonstrated in Widmer, Duerden, and Taniguchi's recent study (2014), wherein self-efficacy was both targeted in an intervention and regressed on academic outcomes; youth who participate in adventure programs develop more positive efficacy beliefs, the thinking goes, and this translates to improved scholastic dispositions (see also Lerner & Lerner, 2013). Our findings, in which groups differed on other known predictors of educational attainment and their corresponding outcomes, do not undermine this logic so much as suggest that other mechanisms are also at work. These processes may be understood through community-level analyses, and in particular through the mechanism of *social capital*.

Social Capital as a Factor in Community-Level Outcomes

In the rural youth development literature, social capital is predominantly viewed through the sociological frameworks of Coleman (1986) and Bourdieu (1986). Coleman focused largely on family structural conditions that enable relationships conducive with educational benefits. Capital, in Coleman's work, involves the generation of social ties that have a productive function in realizing individual goals that would otherwise not be possible. Social capital is a "fungible" asset, meaning it can be traded on to achieve other goals, and is one component of the creation of human capital, which implies "changes in persons that bring about new skills and capabilities that make them be able to act in new ways" (p. S100). Social capital works by changing "the relations among persons that facilitate action" and by allowing "the resources of one relationship to be appropriate for use in others" (pp. S100, S109). Coleman emphasized parents' education for its effect on intellectual stimulation, and two-parent family structure for the availability of heightened child contact and discussions of future planning, as being particularly influential. In addition, integration with social institutions that is enabled by this family structure assists with what Coleman calls "intergenerational closure," or consistency from adults in messages about normative expectations for personal conduct and success. Our analysis indicates, per Coleman's formulation, that (a) family structures and processes are, as in other research, predictive of educational success, and (b) outdoor activity involvement among rural youth is one factor in an overall matrix of

social capital production that extends the influence of the family by leveraging community resources such as other adults who can confirm shared normative expectations. This network of social relations—of which outdoor activities are evidently a part—serves as a kind of capital that “pays off” in terms of educational expectations and success.

Beames and Atencio (2008) supplemented Coleman’s concept of social capital by drawing on the work of Bourdieu (1988). They argued that empirical studies of social capital and outdoor activity participation should be sensitive to how their relationship is shaped by factors like social class, affiliation with schooling practices, and processes of identity formation. In Bourdieu’s framework, social capital is not reducible to objective conditions or proximal social relations, but works in part through “more or less institutionalized relationships of mutual acquaintance and recognition” (p. 51). The accumulation of social capital requires particular investments, that is, efforts to socialize members to normative expectations that include personal desires to adopt certain identities that are legitimated by dominant social institutions. “This work,” Bourdieu writes,

implies expenditure of time and energy and so, directly or indirectly, of economic capital, [and] is not profitable or even conceivable unless one invests in a specific competence (knowledge of genealogical relationships or of real connections and skill at using them, etc.) and an acquired disposition to acquire and maintain this competence, which are themselves integral parts of this capital. (p. 53).

It would be a stretch to say that our analysis offers strong support for Bourdieu’s conceptualization, which is more aimed at class reproduction than the more benign “positive development.” Nonetheless, antecedent differences between groups in the present study suggest that outdoor activities may exacerbate existing uneven distributions of social capital, in part through the influence more highly educated parents exert on children’s activity choices. In other words, one could conceive of organized outdoor activities as a propitious investment in social capital as youth age, externally outsourcing, so to speak, functions that either complement parental efforts or that family resources are themselves unable to realize (see also Laureau, 2003). See, for instance, the higher level of educational expectations among members of group three, alongside their comparably lower levels of future planning and fewer two-parent households, but slightly higher educational levels. Social capital is also of course therefore a formative resource less available to members of group 1, who score significantly lower on key indicators and possess fewer of the characteristics that point toward access to social capital.

For families who face uncertain economic prospects in a rural region undergoing transformation, viewing outdoor activities as a venue for fostering certain dispositions of character in their children can be understood as an in-

vestment in social capital. On the one hand, these investments can help youth form identities linked with more ambitious educational plans (Intrator & Siegel, 2014), which can establish a foundation for pursuing educational opportunity elsewhere. On the other hand, as new tourism sectors grow, emerging adults will play an important role in their realization as engines of economic and social revitalization. The kind of social capital that is attained through enduring involvement in outdoor activities might help awaken youth to opportunities along either pathway. In rural areas, youth-focused organizations might capitalize on the familiarity and availability of outdoor settings as a venue for positive youth development as well as promoting use of the outdoors among families, who can independently pursue activities in unstructured ways. Continuing to explore the distinct contribution of both organized and unstructured outdoor activities, together and separately, will help to better understand developmental processes for youth in different social environments.

Limitations

The current study was exploratory in nature and its claims should be weighed against a number of limitations. First, data—while fairly comprehensive in its longitudinal quality—represented a fairly homogeneous group of youth growing up in one region, limiting the generalizability of our findings. Comparative analyses will need to be conducted to determine trends in other populations. Second, outdoor activities were only differentiated in the survey according to organized and unstructured categories. The unstructured category, for example, captured snowmobiling and hiking—two activities we suspect involve youths who might vary in important ways. Future research should differentiate more carefully between outdoor activities and the youths who participate. Third, the surveys also did not specify “dosage,” hence our use of the term *consistency* throughout adolescence. We can make no claims about *how much* of what kind of outdoor activity is maximally beneficial, to whom, and to what effect. Finally, we excluded other activities from our analysis. It is possible that outdoor activities are engaged in by youths who are also involved in other activities, and that a high degree of overall activity involvement—not any one activity alone—most supports integration into social networks that yield personal benefits. We highlighted outdoor activity because of its historical importance in the region and the high numbers of youth who sustain participation, yet further research is required to more convincingly ascertain its potentially unique properties and meanings for rural individuals and groups.

Conclusion

In their chapter on rural youth, Crockett, Shanahan, and Jackson-Newsome (2000) made several recommendations for future research that have both been fruitfully explored in developmental and educational contexts and that

could afford productive insights into the impacts of different kinds and extents of outdoor activity participation. First, they urge studies on “carefully defined local samples,” requiring sensitivity to “ecological diversity” among populations (p. 66). Youth development does not occur in a vacuum but is shaped by family, community, and regional norms and practices, along with characteristics of the youth themselves. Moving away from universal claims about the benefits of outdoor activities will help identify relationships between person, activity, and context that are crucial to more effective research and programming.

A second, but related point Crockett et al. (2000) make is the adoption of more refined conceptions of “risk, resilience, and social capital.” In rural populations, for example, aggregate comparisons are often made to nonrural youths. However, Crockett et al. suggest that “more careful attention should be paid to the sources of risk, in particular rural locations, and to the types of protective strategies that could be applied to foster positive outcomes” (p. 67). Our analysis supports their point that some rural youths are more “at risk” than others, and these youths often have access to fewer developmental supports including sources of social capital (e.g., family structures and processes, community associations). Further studies that use person-centered analyses at the community level could be a fruitful way to study long-term trends, as opposed to (or in addition to) the cross-sectional designs that populate the literature at this point. Future work along these lines would be useful in exploring the “interplay of social change and social capital” that constitute contemporary interactions among “youth, ecological context, and life course” (p. 68).

Several broad scholarly and practical implications can also be gleaned from this study. Researchers interested in advancing a developmental perspective on outdoor activity should consider a suite of individual and social conditions to more fully understand processes and outcomes of involvement. Quantitative and qualitative analyses will be required for this effort. From a practical perspective, communities should not only prioritize recruitment of youths from underrepresented groups, but should work to address youth interests, parents’ concerns, and the structural conditions that currently prohibit involvement. Efforts can beneficially shift, in other words, from focusing only on designing specific programs for already-involved youths, to community-level efforts that target different children and youths in novel ways, for example, by coordinating programs across age levels, leveraging resources and expertise across institutions, and developing community infrastructure so families with young children can access the outdoors independently. Future research on positive development through outdoor activity involvement could benefit from taking an ecological approach that addresses these factors more directly. Efforts to situate outdoor activity involvement amidst broader developmental and social processes are an important direction for research on the developmental benefits and limitations both organized and unstructured outdoor activities for a range of youths.

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