

---

# Individual and Community Processes of Social Closure

*A Study of Adolescent Academic Achievement and Alcohol Use*

Thorolfur Thorlindsson

*University of Iceland*

Thoroddur Bjarnason

*University of Akureyri, Iceland*

Inga Dora Sigfusdottir

*Reykjavik University, Iceland*

**abstract:** While the concept of social capital has rekindled interest in fundamental issues of social inquiry, concerns have been raised regarding its definition and application in increasingly diverse topics. We address these concerns by revisiting Coleman's and Bourdieu's original ideas of the role of family and school in adolescent outcomes. Multi-level modelling reveals that controlling for individual background, parental relations and adolescent activities, school levels of inter-generational closure and cultural activities are predictive of higher maths grades, while school levels of intergenerational closure, supervised activities and sports participation are predictive of less alcohol use. The results support the general thrust of social capital theory and suggest further theoretical elaborations.

**keywords:** adolescents ♦ alcohol use ♦ academic achievement ♦ community ♦ social capital ♦ social closure

---

## Introduction

Social capital theory underscores a genuinely sociological perspective drawing attention to the emergent properties of communities and the resources that inhere in social relationships. The various formulations of social capital theory transcend the individual level of analysis by focusing on the activation of social networks. The emergent qualities of a social group have to be empirically determined, as they are not a given property of that group. Combined with recent developments in statistical theory, social capital theory offers a unique perspective on the interplay of social control, norms and networks in the creation of social reality.

Although several scholars have voiced concerns over the concept of social capital becoming increasingly vague, as it has been stretched to cover more and more diverse social phenomena (e.g. Baron and Hannan, 1994; Edwards and Foley, 1998; Morgan and Sorensen, 1999; Portes, 2000; Woolcock, 1998), the theoretical issues originally raised under the banners of social capital theory were in fact fairly specific. Both Coleman (1988) and Bourdieu (1979) derived

and discussed the concept of social capital in the context of educational attainment and the reproduction of social inequality. In the process, they shifted attention within the sociology of education from earlier pedagogical and curriculum-driven concerns to the influences of family, peers and community on educational achievement.

Social capital theory partially bridges the gap between the individual level and the community level of sociological analysis. While social capital can be mobilized to enhance private outcomes, it is generated in social networks and can simultaneously contribute to the welfare of the community as a whole (Coleman, 1988; Carbonaro, 1999). Individual outcomes will depend on access to different forms of social capital, which in turn varies according to social location (Bourdieu and Passeron, 1977; Bourdieu, 1979; Edwards and Foley, 1998).

### ***Norms, networks and the importance of social closure***

Coleman (1988) sees social closure as a resource that inheres in the structural relations among individuals and groups. The closure of social structure consists of redundant social ties within the same community that facilitates the emergence of collective norms and the enforcement of sanctions. Coleman suggests that norms may constitute a powerful form of social control when they are embedded in such closure of social structure.

The existence and form of normative consensus in a given society is nevertheless a complicated issue. As Coleman and other social capital theorists have acknowledged, norms may vary in strength and they may moderate or even contradict each other. In the case of educational achievement, structurally closed parental networks may be characterized by norms that are indifferent or even hostile to school norms and practices (Hallinan and Kubitschek, 1999; Morgan and Sorensen, 1999). Furthermore, as Hallinan and Kubitschek (1999) point out, the effects of shared norms in socially closed networks may depend on the content, intensity, duration and patterns of social interactions.

According to Coleman (1988), communities characterized by a high degree of social closure contribute to educational achievement among adolescents by facilitating the construction and enforcement of norms that direct student efforts toward learning. The density of social ties between parents within the same community creates a form of social capital that is of particular importance to the well-being of all adolescents in the community. Simply put, parents are better able to establish norms and standards in their community when they know each other personally.

Although Coleman's work is rooted in the sociology of education, his concept of intergenerational closure lends itself naturally to the study of deviance. *Intergenerational closure* provides social control over children's activities and directs them towards socially accepted goals. Social capital theory thus constitutes a contribution to social control theory by framing normative closure as a specific aspect of community-based social control. In fact, the concept of intergenerational closure may be better suited for the study of socially disapproved behaviours than the study of socially valued behaviours. Societal and parental norms regarding the desirability of educational achievement and the dangers of alcohol consumption vary in their unity and intensity. Furthermore, the norms that *prescribe* academic achievement are supporting behaviours that are seen as positive, whereas norms that *proscribe* adolescent drinking behaviour aim to hinder behaviours deemed undesirable.

Norms of educational achievement may differ substantially in the population, and such achievement may not be the most salient concern of many parents with regard to the well-being of their children. In contrast, alcohol use has widespread, serious consequences for adolescents, including a significantly elevated risk of accidents, physical violence, unprotected sex and indeed reduced educational performance (Bjarnason et al., 2002), and the strong parental consensus against adolescent alcohol use is backed by a law in most Western countries. In this study, we compare and contrast the impact of social capital and social closure

on these two different social outcomes among adolescents, casting the theoretical issues at stake into sharp relief.

### ***Social structure of adolescence***

It is important to recognize that engagement in leisure activities may alternatively increase or reduce the type of social capital that enforces the normative consensus of parental society. Thus Coleman's (1961) observation that adolescent society encourages anti-intellectualism and reduces motivation for schoolwork in particular raises concern over the negative effects of adolescents' peer groups on school achievement. Closely knit peer groups may generate high levels of social capital that enable individual members to reach such desired adolescent goals as 'having fun' or 'getting high' without contributing to such desired parental goals as 'working hard' or 'getting good grades'. Unstructured adolescent activities tend to disrupt conventional social networks, undermine social institutions and lead to various negative outcomes (Thorlindsson and Vilhjalmsson, 1991; Thorlindsson et al., 1998).

In contrast, Bourdieu's (1979) conceptualization of *cultural capital* suggests that adolescent involvement in 'highbrow' cultural activities should lead to positive outcomes in mainstream society. He argues that the school system is an integral part of a cultural system that values and promotes upper class cultural knowledge and cognitive skills. Such cultural advantages are in effect translated into 'individual intelligence' and 'individual abilities' by the school system. Children who frequently partake in such highbrow cultural activities as attending concerts or galleries, taking art classes or playing classical instruments are individually rewarded by higher grades in a school system that places a high premium on such cultural knowledge (DiMaggio, 1982; Vidarsdottir, 1996). Similarly, participation in organized sport has consistently been found to be associated with better educational outcomes (Snyder and Spreitzer, 1989; Thorlindsson, 1989; Bjarnason, 2000) and less involvement in a variety of delinquent activities (Thorlindsson, 1989; Thorlindsson and Vilhjalmsson, 1991).

On the school level, this critical perspective could be extended to view schools as arenas of competition where no collective social capital is generated and less privileged students are at a greater disadvantage as the comparison level becomes higher. However, it could equally be argued that particular schools constitute arenas of collective privilege, and that students low in cultural capital may be able to take advantage of the collective cultural capital of their schools. These rival interpretations of Bourdieu's work are plausible and must be empirically tested.

In short, some adolescent groups may channel their energies toward activities that enhance their cultural capital, such as participation or enjoyment of classical music, dance, theatre or painting and sculpting (Bourdieu, 1979). Others may focus on unstructured activities, such as congregating in public places or going to parties (Coleman, 1961). In between these extremes, a whole range of adolescent activities take place under adult supervision in youth clubs, voluntary associations and school-sponsored activities. Participation in organized sport in particular can be argued to be an important form of supervised adolescent activities that may penetrate adolescent society more deeply than other such activities. They can be seen as an institutionalized form of intergenerational closure that should lead to less alcohol use and greater educational performance. Conversely, to the extent that unsupervised forms of daily activities characterize adolescent society, individual members of that society can be expected to engage less in academic efforts and more in the use of alcohol and other substances.

The multi-level nature of social capital theory has important methodological consequences. In order to distinguish between individual-level and community-level processes, it is necessary to obtain reliable estimates on different levels of analysis. Researchers using sample data have often been forced to use individual characteristics as proxies for community-level processes. In contrast, our data include an entire two-year national cohort rather than a sample of students,

and has allowed us to aggregate student-level data and generate solid measures of the school community.

## Method

### *Sample and data*

The data used in the current study come from a national survey of Icelandic adolescents (Thorlindsson et al., 1998). The Icelandic school system is based exclusively on public schools that are equally funded and follow the same core curriculum. Furthermore, enrolment in a particular school is based exclusively on residence in a well-defined geographical area. The Icelandic school communities are thus defined by the boundaries of actual geographical communities. Our data therefore effectively hold constant various organizational characteristics that have proved difficult to control in studies based on large, heterogeneous educational systems in countries such as the United States (see, e.g., Carbonaro, 1999; Hallinan and Kubitschek, 1999; Morgan and Sorensen, 1999).

The sample consists of all students attending the compulsory 9th grade (14–15 year olds) and 10th grade (15–16 year olds) in all Icelandic secondary schools. Anonymous questionnaires were administered to all students present in class on 17 March 1997. Teachers and research assistants distributed the questionnaires and students sealed them in blank envelopes upon completion (for methodological considerations, see Bjarnason, 1995). Valid questionnaires were obtained from 7758 individuals, which is approximately 89 per cent of all students in these age groups. The study is therefore based on the responses of most of the national population of 9th and 10th grade students in Iceland.

*Missing values.* The proportion of missing values on each item ranges from zero to 3.4 per cent, with an average of 1.8 per cent missing values on the measures used in the following analysis. Missing values on continuous independent variables were replaced by stochastic mean substitution, adding a normally distributed error term to each substituted case. A total of 63 cases with missing values on dependent variables were excluded from further analysis. For methodological reasons, schools with 10 or fewer students per cohort were omitted from the current study, resulting in the exclusion of 113 students in 18 schools. The final sample used in the following analysis includes 7582 students in 116 schools.

*Dependent variables.* *Alcohol use* is measured using a 4-item summary scale of lifetime and past 30 days frequency of alcohol use and intoxication (alpha 0.81). These measures were adopted from the *European School Survey Project on Alcohol and Other Drugs* (ESPAD) and were translated and validated according to the ESPAD protocol (see Hibell et al., 2000). The resulting 21-point scale is truncated to a range of 0–10 to reduce the skewness created by a small group of heavy drinkers. Methodological research in this area suggests that adolescents report their use of alcohol and other drugs fairly accurately (see, e.g., Bjarnason, 1995). The 1999 ESPAD study provides a cross-national context for alcohol consumption among Icelandic students (Hibell et al., 2000). The proportion of 15–16 year old Icelandic students that reported any alcohol consumption in the previous 30 days was substantially lower than in most other Nordic countries.

*Maths grades* are measured by self-reported average grade in maths at the end of the previous semester. Due to confidentiality restrictions, we were not able to match individual questionnaires with school transcripts. Methodological studies nevertheless suggest the validity and reliability of self-reported grades to be similar to self-reported alcohol use. In the United States, on comparing student self-reports with official school transcripts in the NELS data set, Schiller (2002) found that although students in general overestimate their maths

**Table 1** Descriptive statistics for multi-level analysis of maths grades and alcohol consumption among Icelandic adolescents

	Range	Mean	St. dev.	s.e.
School level ( $n = 116$ )				
Parental society				
Level of single parenthood	0.00–0.36	0.10	0.07	0.006
Level of education	2.2–4.2	3.0	0.40	0.037
Level of monitoring	3.5–5.9	4.9	0.55	0.051
Level of intergenerational closure	4.8–7.5	6.4	0.44	0.041
Adolescent society				
Level of cultural activities	10.2–14.0	11.5	0.73	0.068
Level of unsupervised activities	4.7–9.5	6.3	1.0	0.093
Level of supervised activities	9.6–17.9	12.8	1.6	0.151
Level of sport activities	6.7–11.5	9.4	0.95	0.089
Individual level ( $n = 7582$ )				
Background				
Female	0–1	0.48	0.49	0.01
Parental education	1–5	3.2	1.3	0.01
Family structure <sup>1</sup>				
Single mother	0–1	0.10	0.30	0.003
Single father	0–1	0.01	0.12	0.001
Mother and stepfather	0–1	0.11	0.32	0.004
Father and stepmother	0–1	0.01	0.12	0.001
Other arrangements	0–1	0.02	0.13	0.001
Parental relations				
Monitoring	2–8	5.2	1.9	0.021
Support	2–8	6.8	1.4	0.016
Time with parents	2–10	5.6	2.1	0.024
Parents know friends	1–4	3.5	0.72	0.008
Parents know parents	1–4	2.8	0.95	0.011
Youth activities				
Cultural activities	9–41	11.4	3.2	0.037
Unsupervised activities	4–20	6.3	2.5	0.029
Supervised activities	7–40	12.6	3.9	0.045
Sport activities	3–15	9.4	4.0	0.046
Dependent variables				
Maths achievement	2–10	6.6	2.2	0.025
Alcohol consumption	0–10	2.3	3.1	0.036

<sup>1</sup> Intact families are contrast.

grades by about one-third of a letter grade, self-reported grades provide a reliable measure of students' position in the grade distribution ( $r: 0.72$ ). The 1995 *Third International Mathematics and Science Study* (TIMSS) provides a cross-national context for educational achievement in maths among Icelandic students (Mullis et al., 1998). In this study, the scores of Icelandic students in their final year of secondary school were similar to those of the other participating Nordic countries.

*Schools and geographical areas.* The Icelandic educational system is divided into nine geographical districts supervised by the Ministry of Education. In terms of student population, the largest districts include the capital *Reykjavik* (33 per cent of all students in the target age group), the surrounding *Capital Region* (22 per cent) and the *Northeast District*, where the small

city of Akureyri is located (10 per cent). The other six districts are characterized by more numerous, smaller schools, and the number of schools is roughly equal in all districts. In the current study, we control for geographical areas and cohort size. These controls became non-significant in the multivariate models and are excluded from the tables.

*Family structure.* Coleman (1988: 111) argues: '[t]he physical absence of adults may be described as a structural deficiency in family social capital. The most prominent element of structural deficiency in modern families is the single-parent family'. To our knowledge, in no previous study have the potential effects of school levels of single parenthood on adolescent alcohol use been examined. Students living with *both biological parents* (73 per cent of the total student population) serve as the reference category in the following analysis. We expect adolescents who do not live with both parents, and students who live in the neighbourhood where non-traditional households are more prevalent, to report lower maths grades and higher alcohol use.

*Parental education.* In Coleman's terms, parental education constitutes human capital, a resource that adolescents can draw upon when it is activated through social capital, while Bourdieu sees parental education as a source of cultural capital that may give adolescents an advantage in a class-biased school system. Regardless of the 'ultimate cause' of this relationship, both theorists would thus predict parental education to be associated with higher grades. Following Coleman, the school level of parental education should be taken as a measure of the human capital of the parental community in each school. Respondents were asked to indicate the educational attainment of their mother/stepmother and father/stepfather on a 5-point scale (1: Compulsory school or less; 5: Completed a university degree). For our purposes, parental education is defined as the education of the parent with the higher attainment. The average school level of parental education constitutes the human capital of the parental community in each school. We expect both individual levels and school levels of parental education to enhance the educational achievement of individual students, but we do not expect such effects on adolescent alcohol use.

*Parental relations.* Coleman conceptualizes parental relations as a specific form of social capital that harnesses the human capital of the parents to the benefit of their own children and to the benefit of all children in the community. We distinguish between several elements of the relations between parents and their children. First, the extent to which adolescents believe their parents monitor their behaviour constitutes a certain type of social closure within the family. We measure *parental monitoring* using a 2-item summary scale ( $r$ : 0.66) of parent(s) knowing (i) where and (ii) with whom the student is in the evenings (2: 'Applies very poorly to me' on both measures; 8: 'Applies very well to me' on both measures). We expect both individual and school levels of parental monitoring to be positively associated with educational performance and negatively related to alcohol use.

Second, the perceived emotional closeness between adolescents and their parents constitutes a type of social capital. *Parental support* is measured by a 2-item summary scale ( $r$ : 0.58) of how easy it is to (i) get warmth and caring from parent(s) and (ii) discuss personal matters with parent(s) (2: 'Very difficult' on both measures; 8: 'Very easy' on both measures). We expect it to be associated with less involvement in alcohol use and more in educational achievement.

Third, *time spent with parent(s)* is a 2-item summary scale ( $r$ : 0.59) measuring how frequently the student spends time with his or her parent(s) (i) on weekends and (ii) on weekdays (2: 'Almost never' on both measures; 8: 'Almost always' on both measures). We expect time spent with parents to be positively related to maths grades and negatively related to alcohol use on the level of individual students.

Fourth, *intergenerational closure* is measured in two ways: parents knowing their children's friends as a measure of the 'vertical' ties between parents and adolescents from different

families. This should serve as an extension of parental monitoring, both through the social bond between parent and friend and through the opportunity it offers for parents to sever their children's ties with friends deemed subversive to parental goals. We measure this construct with the single item of the respondent's *parents knowing his or her friends* and (ii) the respondent's *parents knowing his or her friends' parents* (1: 'Applies very poorly to me' on each measure; 4: 'Applies very well to me' on each measure).

Finally, social ties between parents represent the individual-level component of *intergenerational closure*. We use parents knowing other parents as a measure of the 'horizontal' dimension of such ties between adults. We operationalize this construct as the respondent's *parents knowing his or her friends' parents* (1: 'Applies very poorly to me' on each measure; 4: 'Applies very well to me' on each measure). The school level of intergenerational closure is defined as the school mean of the horizontal and vertical closure. Following Coleman, we expect school level intergenerational closure to foster a stronger normative consensus that facilitates educational achievement and reduces adolescent alcohol use. Furthermore, we expect this community-level effect to persist after controlling for the effects of individual-level parental ties with other parents or with other adolescents.

*Adolescent activities.* Adolescents engage in a wide variety of activities that generate different types of social capital. Some of this capital can be used to promote the goals of mainstream society, while other forms of capital only have currency in adolescent society and may constitute a cost in adult-controlled settings. We distinguish between four such types of activity that we expect to have an effect on both educational achievement and alcohol use.

First, we regard participation in unsupervised activities as a form of activities that can be expected to foster adolescent values of excitement and fun that disrupt conventional social networks, undermine social institutions and reduce conventional social capital (Thorlindsson et al., 1998; Bjarnason et al., 1999; Bernburg and Thorlindsson, 2001). In schools where adolescent society is stronger, individual students can be expected to be relatively insulated from the demands of adult society and more influenced by the short-term goals of excitement and fun over the long-term goals of social and economic success. Students were asked (i) how often they attended parties; hung around the downtown area (ii) at nights or (iii) on weekends; and (iv) how often they went to computer arcades. The responses were summed into one scale (alpha: 0.71). On the school level, the prevalence of unsupervised activities can be seen as a measure of the strength of adolescent societies in each school. We expect individual participation in unsupervised activities to be associated with lower grades and more alcohol use. Furthermore, we expect more alcohol use and lower grades in schools where adolescent society is strong.

Second, *sports participation* is a supervised activity that should be associated with the adolescent outcomes that parents are likely to deem positive. Involvement in sports activities is measured using three items (alpha: 0.81), referring to (i) physical training outside physical education classes, (ii) participation in organized sports clubs, and (iii) physically strenuous work-outs. We expect individuals who participate in sports to earn higher grades and drink less alcohol. Similarly, we expect schools where the culture of sports is stronger to be characterized by higher grades and less alcohol use among all students, regardless of their individual sports participation.

Third, *participation in supervised youth activities* should generate the type of social capital valued by parental society. On the school level, the prevalence of supervised youth activities can be considered a specific form of institutionalized intergenerational closure. Students were asked how often they participated in (i) scout clubs, (ii) political activities, (iii) rescue squads, (iv) activities at youth recreational centres, (v) extra-curricular activities at school, (vi) photographic clubs or (vii) other organized youth activities. Responses were summed into one scale.

We expect such participation to be associated with outcomes that are consistent with parental expectations, as these take place under the supervision of individuals charged with quasi-parental responsibilities. Schools where youth activities are more organized should also be characterized by better outcomes.

Finally, cultural activities such as attending classical concerts, theatre productions and other cultural events, and various forms of artistic involvement, capture an aspect of Bourdieu's (1979) concept of cultural capital; the cultural class distinctions that are transformed into individual intelligence in the school system. *Cultural activities* are measured using a 9-item scale. Respondents were asked how often they took (i) music or (ii) dance lessons, (iii) played unplugged musical instruments, or (iv) created something with their hands, including painting, sculpting and carpentry. Respondents were also asked how often they (v) composed music or (vi) wrote lyrics. Finally, they were asked how often they (vii) visited museums or attended (viii) theatre or (ix) classical music performances. We expect cultural activities to be associated with higher maths grades on the individual level. However, we do not expect such activities to be related to alcohol use. On the school level, we take cultural capital to be a distinct form of social capital that should exert a positive effect on school grades and a negative effect on alcohol use.

### **Statistical analysis**

The following data analysis is based on multi-level modelling techniques (Goldstein, 1987; Bryk and Raudenbush, 1992) and was conducted using the *HLM 5* software (Raudenbush et al., 2000). This methodology allows us to empirically address several important theoretical and conceptual issues that have remained unresolved in prior studies.

## **Results**

The results of the statistical analysis of maths grades are given in Table 2 and for alcohol consumption in Table 3. In each table, the first column gives the bivariate results obtained using one individual-level or school-level predictor at a time. The second column shows multivariate results for school-level predictors only. In other words, the effects of school-level variables on maths grades (Model 2.1) and alcohol use (Model 3.1) are estimated as differences in school intercepts. This is analogous to a multiple regression model using schools as the unit of analysis.

The results of the multi-level models are given in the third column of each table. They show both the individual-level results and the school-level effects that are irreducible to the individual level. The third column also shows statistically significant cross-level interactions between school-level and individual-level predictors. As shown above, these interactions are generated by modelling variable slopes for each individual-level predictor by school-level predictors.

In the final column, the unexplained variances in school intercepts and school slopes are given. A statistically significant variance in school intercepts implies a significant difference in grades or alcohol use between schools. A statistically significant variance in slopes implies that a significant unexplained variance in the strength of individual-level predictors remains between schools. As recommended by Bryk and Raudenbush (1992), non-significant variances are set to zero.

### **Individual-level effects**

*Family background.* Both Coleman (1988) and Bourdieu (1979) conceptualize social capital as a process of activating collective resources. Within the family, parental education and family



**Table 2** Multi-level model of maths grades among Icelandic adolescents (unstandardized effects)

	Bivariate	Model 2.1	Model 2.2	Unexplained variance in school intercepts
Intercept	6.52***	6.51***	6.59***	0.196***
School level				
Parental society				
Level of single parenthood	0.92 <sup>ns</sup>	–	–	
Level of education	0.37***	0.47***	–	
Level of monitoring	0.19*	–	–	
Level of intergenerational closure	0.02 <sup>ns</sup>	0.23*	0.15*	
Adolescent society				
Level of cultural activities	0.18**	0.16*	0.07*	
Level of unsupervised activities	–0.08**	–	–	
Level of supervised activities	–0.05 <sup>ns</sup>	–	–	
Level of sport activities	–0.03 <sup>ns</sup>	–	–	
School-level explained variance		19.8%	12.6%	
				Unexplained variance in school slopes
Individual level				
Background				
Female	0.22***		0.23***	0.075*
Parental education	0.34***		0.23***	–
Family structure <sup>1</sup>				
Single mother	–0.56***		–0.24***	–
Single father	–0.64**		–0.35*	–
Mother and stepfather	–0.61***		–0.30***	–
Father and stepmother	–0.87***		–0.52**	–
Other arrangements	–1.03***		–0.53**	–
Parental relations				
Monitoring	0.22***		0.10***	–
Support	0.19***		0.08***	–
Time with parents	0.17***		0.05***	–
Parents know friends	0.27***		–	–
Parents know parents	0.23***		–	–
Adolescent activities				
Cultural activities	0.07***		0.05***	0.002**
Unsupervised activities	–0.11***		–0.10***	–
Supervised activities	0.05***		0.06***	–
Sport activities	0.10***		0.09***	–
Individual-level explained variance			16.4%	
Cross-level interaction				
School-level intergenerational closure × individual-level parental education			–0.20***	

<sup>ns</sup> non-significant.<sup>1</sup> Intact families are contrast.\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

structure can be seen as resources that may benefit children. As a result, less parental education and the absence of one or both parents from the home should be expected to result in lower maths grades and greater alcohol use among adolescents. Consistent with these theoretical expectations and the results of previous studies (e.g. Astone and McLanahan, 1991; McLanahan

**Table 3** Multi-level model of alcohol use among Icelandic adolescents (unstandardized effects)

	Bivariate	Model 3.1	Model 3.2	Unexplained variance in school intercepts
Intercept	2.38***	2.31***	2.33***	0.189***
School level				
Parental society				
Level of single parenthood	3.48**	–	–	
Level of education	–0.08 <sup>ns</sup>	–0.31*	–	
Level of monitoring	–0.04 <sup>ns</sup>	–0.30**	–0.25**	
Level of intergenerational closure	–0.82***	–0.84***	–0.78***	
Adolescent society				
Level of cultural activities	0.00 <sup>ns</sup>	–	–	
Level of unsupervised activities	0.20***	0.27***	–	
Level of supervised activities	–0.18**	–0.28***	–0.21***	
Level of sport activities	–0.24***	–0.26***	–0.15**	
School-level explained variance		83.3%	60.8%	
	Bivariate		Model 3.2	Unexplained variance in school slopes
Individual level				
Background				
Female	–0.12 <sup>ns</sup>		–0.19**	–
Parental education	–0.16***		–	–
Family structure <sup>1</sup>				
Single mother	0.96***		0.32***	–
Single father	1.27***		0.63**	–
Mother and stepfather	0.96***		0.35***	–
Father and stepmother	1.63***		0.81**	–
Other arrangements	2.31***		0.96***	–
Parental relations				
Monitoring	–0.32***		–0.10***	–
Support	–0.27***		–	–
Time with parents	–0.60***		–0.33***	–
Parents know friends	–0.62***		–	–
Parents know parents	–0.59***		–0.14***	–
Adolescent activities				
Cultural activities	–0.01 <sup>ns</sup>		–	–
Unsupervised activities	0.43***		0.37***	0.015***
Supervised activities	0.05*		–0.08***	0.013***
Sport activities	–0.13***		–0.09***	–
Individual-level explained variance			34.5%	
Cross-level interaction				
School-level intergenerational closure				
× individual-level unsupervised activities			–0.09**	

<sup>ns</sup> non-significant.

<sup>1</sup> Intact families are contrast.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

and Sandefur, 1994; Pong, 1997; Bjarnason, 2000), we find higher parental education and traditional family structure to be associated with higher adolescent educational achievement. Table 2 shows that, on the bivariate individual level, parental education is positively related to maths grades, and adolescents living in all types of non-traditional family structures report

significantly lower maths grades. These patterns persist albeit weakened in the multivariate Model 2.2.

Prior studies have also found non-traditional family structures to be associated with more alcohol use (e.g. Bjarnason et al., 2003), but such an association has generally not been found between parental education and adolescent alcohol use (e.g. Morgan and Grube, 1989; Thorlindsson and Vilhjalmsson, 1991). As can be seen from Table 3, all types of non-traditional family structures have a positive bivariate and multivariate (Model 3.2) association with alcohol use. In the bivariate analysis there is a negative association between parental education and alcohol use, but this effect disappears in the multivariate analysis.

*Parental relations.* We distinguish between five theoretically distinct forms of parental relations that can be subsumed under the general rubric of social capital theory. First, in line with various forms of social control theory and previous research, we expect adolescents whose *parents monitor* their behaviours to study harder and party less. Accordingly, we find parental monitoring to be associated with higher maths grades (Model 2.2) and less alcohol use (Model 3.2).

Second, drawing on the literature on social support and social control, adolescents who enjoy more *parental support* can be expected to be more inclined to adopt parental priorities and less inclined to endanger their stakes in peer conformity (Hirschi, 1969). In accordance with these expectations we find adolescents who enjoy more parental support to report higher maths grades and less alcohol use. This association persists for maths grades in the multivariate Model 2.2. The association between parental support and alcohol use, however, is rendered non-significant in Model 3.2, suggesting that this effect operates entirely through other constructs in the model.

Third, *time spent with parents* can be seen as a measure of closeness to parents and participation in common activities (Warr, 1993), as well as a measure of fewer opportunities for participation in delinquent activities (Hirschi, 1969). It can also be viewed as a particular form of routine activities (Cohen and Felson, 1979; Felson et al., 1994) that increases the probability of positive outcomes. As expected, we find the time adolescents spend with their parents to be associated with higher maths grades (Model 2.2) and less alcohol consumption (Model 3.2).

Fourth, *parents knowing friends* signals direct parental involvement in the lives of adolescents. Such ties constitute a form of monitoring of adolescent activities outside the home and can be seen as a form of social closure across adolescent and adult societies. Parents knowing friends have the expected bivariate association with higher maths grades in Table 2 and lower alcohol use in Table 3. However, these effects become non-significant when controlling such factors as parental support, parental monitoring or parents knowing the parents of other adolescents in Models 2.2 and 2.3.

Finally, Coleman's concept of intergenerational closure implies that parents knowing the parents of their children's friends will contribute to positive outcomes for their own children (see, e.g., Morgan and Sorensen, 1999). Indeed, we find the extent of such parental ties to have a positive bivariate association with maths grades and a negative bivariate association with alcohol use. The negative effect of individual-level closure on alcohol use persists in the multivariate Model 3.2. In the case of maths grades, however, we find that this correlation can be fully accounted for by other factors in Model 2.2. In other words, individual-level closure is associated with less alcohol use, but does not appear to affect maths grades directly.

*Adolescent activities.* Adolescents are embedded in various social networks through their everyday activities, and such activities can be expected to be associated with both positive and negative outcomes. As Coleman (1961) points out in his early work, adolescent society emerges from unstructured and unsupervised activities that are independent of, or even in opposition to, mainstream adult-controlled society. The normative structure of adolescent

societies tends to emphasize immediate gratification through excitement and fun at the expense of deferred gratification in the service of long-term goals. Accordingly, we find that on the individual level participation in such *unsupervised activities* is associated with significantly lower maths grades (Model 2.2) and higher alcohol use (Model 3.2).

As Putnam (1995) has argued, participation in voluntary associations may constitute an important source of social capital. In the case of adolescents, organized activities under adult supervision can be expected to have such effects. Earlier research (Thorlindsson and Vilhjalmsson, 1991; Bjarnason, 2000) has suggested that sports may constitute a particularly potent form of supervised activities. Accordingly, we find that, net of other factors, adolescents who engage more frequently in *supervised activities* and *sports* report higher grades (Model 2.2) and less alcohol use (Model 3.2).

Finally, Bourdieu (Bourdieu and Passeron, 1977; Bourdieu, 1979) conceptualizes participation in cultured activities as a form of cultural capital that is transformed into individual intelligence in the school system. Consistent with prior empirical work (DiMaggio, 1982; Vidarsdottir, 1996), adolescents who engage in various cultural activities report significantly higher maths grades (Model 2.2). We were unable to locate studies that examined such associations with alcohol use, and we failed to find such a bivariate or multivariate (Model 3.2) association between individual cultural activities and alcohol use.

### *School-level effects*

Social capital theory explicitly predicts the community-level effects of social capital on adolescent outcomes to be irreducible to the social ties of individuals. Multi-level modelling allows us to test this prediction directly by modelling community-level effects as differences in intercepts and slopes between schools. In Models 2.1 and 3.1 we use various measures of social capital in parental and adolescent societies to predict the level of maths achievement and alcohol use in each school. In Models 2.2 and 3.2 the individual-level predictors have been included, so the school-level coefficients refer to differences between schools that cannot be attributed to individual-level differences.

*Parental society.* Our model includes measures of four aspects of social capital in parental society. First, we conceptualize the *level of single parenthood* in each school as a collective lack of resources. Contrary to Bankston and Caldas (1998), we do not find the prevalence of single parenthood to affect maths grades on the school level. We do find a positive bivariate association between level of single parenthood and alcohol use, but this effect becomes non-significant once other school-level characteristics are taken into account in Model 3.1.

The school *level of parental education* can be viewed as a collective resource that should benefit all children in the community. We find that after taking other school characteristics into account, students report higher maths grades (Model 2.1) and less alcohol use (Model 3.1) in schools where parents generally have attained higher educational levels. However, once the educational level of individual parents and other individual-level factors have been taken into account, these effects on maths grades (Model 2.2) and alcohol use (Model 3.3) disappear. This aspect of collective human capital thus appears to be fully attributable to individual-level processes.

The school level of parental monitoring can be seen as a measure of surveillance of adolescents in parental society. Adolescents may have fewer opportunities to engage in alcohol use or other delinquent activities in communities where more adolescents are monitored more closely by their parents. Accordingly, we find that the level of monitoring in each school is associated with less alcohol use on the individual level, net of other school characteristics and individual-level processes (Model 3.2). There is no compelling reason to expect a similar effect of school levels of parental monitoring on individual academic achievement, and we do not find such an effect (Model 2.2).

Coleman (1988) conceptualizes intergenerational closure as a structural characteristic that is independent of individual parental ties. The school *level of intergenerational closure* captures the main thrust of this argument better than the individual-level measures used in prior studies. Importantly, we find that while parents knowing other parents have no significant effect on maths grades on the individual level, students nevertheless report higher maths grades when they attend schools characterized by a high density of such ties (Model 2.2). Furthermore, we find school levels of intergenerational closure to be associated with less alcohol use, even after taking into account the individual-level effect of having parents with such ties (Model 3.2). These findings lend strong support to Coleman's conception of intergenerational closure as a communal property that is greater than the sum of its individual parts.

*Adolescent society.* In his earlier work, Coleman (1961) conceptualized adolescent society as a one-dimensional hierarchical structure organized around the principle of 'popularity'. However, the literature drawing upon his later work on social capital suggests a more nuanced approach to such societies and their relation to mainstream society (see, e.g., Paxton, 1999). Drawing on Coleman, we have argued that students in schools with a high level of unsupervised activities should be less inclined to study and have more opportunities to party. In fact, we do find the school levels of unsupervised activities to be associated with more alcohol use and lower maths grades, net of other school level characteristics in Models 2.1 and 3.1. However, these effects disappear once the unsupervised activities of each student and other individual-level processes have been taken into account in Models 2.2 and 3.2. In other words, although individual participation in unsupervised activities is associated with lower grades and more alcohol use, the level of unsupervised activities in the school does not affect the maths grades or alcohol use of students who do not take part in such activities.

In contrast to unsupervised activities, we expected higher maths grades and less alcohol use in schools where sports and other supervised activities are more prevalent. As expected, we find school levels of sports activities and other supervised activities to be negatively related to alcohol use in Model 3.2. However, we do not find such school-level effects in the case of maths grades. As a form of social closure, organized activities thus seem to be more effective in reducing delinquency than in supporting positive outcomes.

Finally, drawing on Bourdieu (1979) in particular, we expect school levels of cultural participation to be associated with higher maths grades. Indeed, we find that students report higher maths grades in schools where cultural activities are more prevalent (Model 2.2). We do not find an association between such cultural activities and alcohol use among students (Model 3.2). In other words, students do better in school when they take part in highbrow cultural activities and when they attend schools where such activities are prevalent.

### ***Cross-level interactions***

According to social capital theory, social closure on the level of communities should moderate the effects of individual-level processes on individual outcomes. In Model 2.2 we find that intergenerational closure does indeed have a negative effect on the slope between parental education and maths grades. In other words, the educational attainment of individual parents is significantly less important for the maths grades of their children when intergenerational closure is high on the school level. We also found significant variance in the strength of the individual-level effects of gender and cultural activities on maths grades, but this variance could not be explained by school-level differences in intergenerational closure.

In the case of alcohol consumption, we found significant between-school differences in the strength of the effects of participation in both supervised and unsupervised youth activities. As shown in Model 3.2, we found intergenerational closure to have a significant negative effect on the slope between individual participation in unsupervised activities and alcohol

use. Individual participation in unsupervised activities is significantly less likely to be related to increased alcohol use when intergenerational closure is high on the school level. We did not find an effect of school-level intergenerational closure on the slope between participation in supervised activities and alcohol use.

### ***Unexplained variance***

The multi-level Model 2.2 reduces the unexplained variance in reported maths grades between schools by 12.6 per cent and the unexplained difference between individuals by 16.4 per cent. A significant difference remains in maths grades between schools as well as in the strength of the individual-level effects of gender and cultural activities on such grades. The strength of other individual-level predictors in Model 2.2 does not differ more between schools than could be expected by chance.

In the case of alcohol use, we find that Model 3.2 reduces the unexplained between-schools variance by 60.8 per cent and reduces the unexplained between-individual variance in alcohol use by 34.5 per cent. A significant unexplained difference nevertheless remains between schools in the level of alcohol use among students. We also find that the strength of the effects of participation in supervised and unsupervised activities on adolescent alcohol use continues to differ significantly between schools, but the between-school variation in the strength of other individual-level predictors is non-significant.

## **Discussion**

Our results demonstrate the importance of a clear theoretical and empirical distinction between different levels of social capital and its role in achieving individual and collective goals. They show that local communities high in social capital are better able to realize common values and support accepted community goals. At the same time, they illustrate how community resources and the location of individuals within local communities affect individual outcomes. The emergent nature of social phenomena is the result of a complex interplay of elements of social structure that can combine in different ways to produce different results. Thus, these findings illuminate the social mechanism involved in forming the community level and clarify the classical notion of social emergence (Durkheim, 1982 [1895]; Mead, 1962 [1934]; Bjarnason, 1998) in a theoretically and intuitively meaningful fashion. Both Bourdieu and Coleman emphasize the emergent nature of social structures in the classical tradition. At the same time they recognize the individual level and the interaction between the two as important aspects of sociality.

In one sense, the theories of these two towering scholars complement each other. Together they help us to grasp the diverse nature of adolescents' networks. Adolescents take part in various overlapping as well as opposing social networks that structure their social environment. These networks may differ substantially in the composition, cohesion and strength of social norms as well as in the level of social closure that supports them. The notions of 'positive' and 'negative' effects of social capital are only meaningful in the normative context of concrete social networks and the vested interests of particular actors or groups. Adolescent academic achievement and adolescent abstinence from substance use are common parental goals that are pursued in a complex social environment. While the intersection of parental and adolescent society is often an arena of conflict over norms and goals, the social capital generated by intergenerational closure becomes a resource for negotiating a balance between the short-term goals of excitement and fun and the long-term goals of social well-being and social success.

Another example selected from our findings may illustrate how the two theories of Bourdieu and Coleman may complement each other. The independence of adolescent society and its

ability to resist adult control of its activities is captured in their attempt to build their own networks centred around unsupervised activities aimed at having fun. These activities frame the lifestyle that so often is taken to characterize this period in life. It is no surprise that engaging in unsupervised activities is related to more individual alcohol use. What is interesting, however, is that our findings show that intergenerational closure based on parental network counteracts the effects of the social capital that resides in unsupervised networks of adolescents. This finding, which is rooted in Coleman's work and should be taken as support for his theory of intergenerational closure, illustrates a fundamental aspect of Bourdieu's theory, i.e. the importance of power in social capital theory. Coleman's theory of intergenerational closure provides a theoretical link explaining Bourdieu's theory of power and dominance in his social capital theory,

In another sense, the theories of Bourdieu and Coleman appear vastly different when their general theoretical context is taken into account. This can be seen in the way that they conceptualize the wider theoretical context of youth participation in voluntary association. Consistent with Bourdieu's theoretical argument, we find that the structure of the school system appears to favour all students in school communities that are characterized by highbrow cultural activities, not just the individual students who take part in such activities. This is supported by our findings that show higher maths grades among individuals who more frequently take part in highbrow cultural activities. In addition, we find that students tend to have higher maths grades in schools where more students take part in such activities, independent of their own individual participation. In Bourdieu's theoretical system, these findings should be considered in relation to symbolic power as part of the reproduction of the existing system of dominance and distinctions. Bourdieu's theory is therefore closer to conflict theories than to consensus theories.

Coleman, on the other hand, sees intergenerational closure as a way to integrate adolescents into adult society. Thus our findings show that individuals who take part in supervised activities enjoy higher maths grades and engage in less alcohol use would in Coleman's theoretical perspective be seen as providing a structure that can mobilize the activities of adolescent society toward the goals of parental society. In the same vein, our findings that less alcohol use in schools where more adolescents take part in supervised activities would in Coleman's terms underscore the role of supervised arenas of adolescent interactions in the process of building viable communities. Coleman's general theoretical framework is thus more in line with consensus than conflict theories.

On a more abstract level, social capital theories of Bourdieu and Coleman may find common ground emphasizing the embeddedness of social action in values, norms and networks (Edwards and Foley, 1998). Thus, it may be seen as an attempt to balance the 'oversocialized conception of man' criticized by Dennis Wrong (1961) against the rational actor of classical economics (Granovetter, 1985). The effects of social capital on individual outcomes depend on such collective characteristics as normative consensus, the intensity of norms and the correspondence between the content of the norms and the definition of desirable outcomes. While there may be a normative consensus among parents regarding both the desirability of educational achievement and the undesirability of substance use, the intensity of the norms surrounding substance use can be expected to be much greater. Accordingly, we find that individual parents knowing other parents reduce alcohol use but do not affect maths grades. Furthermore, we find the school level of intergenerational closure to have a substantially stronger effect on alcohol use than on maths grades.

The importance of norms is further demonstrated by the findings pertaining to participation in cultural activities. These kinds of highbrow cultural activities involve norms that favour school achievement. In contrast, norms against alcohol use are not an integral part of cultural activities in Iceland (Vidarsdottir, 1996), and we find no evidence of such norms being enforced

through the networks of cultural activities. The difference between the effects of sports participation on school achievement and alcohol use also illustrates the importance of norms in social networks. The effect of sport on maths achievement appears to operate exclusively on the individual level. While individuals that participate in sports report higher maths grades, we do not find an effect of the prevalence of sports participation in each school on maths grades. In contrast, we find both an individual-level effect and a school-level effect of sports participation on alcohol use. Adolescents who participate in sports drink less, and there is less drinking among adolescents in schools where sports participation is more widespread. In other words, the effect of the prevalence of sports participation on alcohol consumption is not limited to students who take part in sports. These results are fully consistent with prior research on the normative structure of sport in Iceland. Thorlindsson et al. (1994) found that while Icelandic sports organizations and individual coaches routinely emphasize the detrimental effects of substance use on athletic achievement, academic concerns are not an integral part of the Icelandic sports culture. Sports participation may nevertheless enhance educational achievement on the individual level through the effects of physical conditioning, an ethos of competition and higher expectations of success (Vilhjalmsson and Thorlindsson, 1992; Thorlindsson et al., 1994).

The extent to which our findings can be generalized to other countries must be empirically determined. The interplay of norms and networks in the forming of social capital can take on many different forms. The norms regarding school achievement or substance use may therefore vary from one voluntary association to the next, as may the structure of the various networks. Adolescents' lifestyles and norms may also in theory cut across various social networks. But the principle is the same. Social networks may activate existing norms and thus create social capital. We must also keep in mind that social capital is created in relatively small networks that are tied to local communities. It follows from the theories of Bourdieu and Coleman that local communities will always be the most logical unit of analyses for the study of social capital. But connecting local networks to the wider social structure of societies is not a straightforward theoretical exercise. Sociology offers many different theoretical traditions to choose from to tackle that problem.

## References

- Astone, N. M. and McLanahan, S. S. (1991) 'Family Structure, Parental Practices and High School Competition', *American Sociological Review* 56: 309–20.
- Bankston, C. L. and Caldas, S. J. (1998) 'Family Structure, Schoolmates, and Racial Inequalities in School Achievement', *Journal of Marriage and the Family* 60: 715–23.
- Baron, J. N. and Hannan, M. T. (1994) 'The Impact of Economics on Contemporary Sociology', *Journal of Economic Literature* 32: 1111–46.
- Bernburg, J. G. and Thorlindsson, T. (2001) 'Routine Activities in Social Context: A Closer Look at the Role of Opportunity in Deviant Behavior', *Justice Quarterly* 18: 543–67.
- Bjarnason, T. (1995) 'Administration Mode Bias in a School Survey on Alcohol, Tobacco, and Illicit Drug Use', *Addiction* 90: 550–9.
- Bjarnason, T. (2000) 'Grooming for Success? The Impact of Adolescent Society on Early Intergenerational Social Mobility', *Journal of Family and Economic Issues* 21: 319–42.
- Bjarnason, T., Andersson, B., Choquet, M., Davidaviciene, A. G., Elekes, Z., Miller, P., Morgan, M., Nociar, A., Pavlakis, A., Rapinett, G. and Stergar, E. (2002) *Delinquency Among Adolescents in Eleven European Countries*. Stockholm: CAN.
- Bjarnason, T., Andersson, B., Choquet, M., Elekes, Z., Morgan, M. and Rapinett, G. (2003) 'Alcohol Culture, Family Structure and Adolescent Alcohol Use', *Journal of Studies on Alcohol* 64: 200–8.
- Bjarnason, T., Sigurdardottir, T. J. and Thorlindsson, T. (1999) 'Human Agency, Capable Guardians, and Structural Constraints: A Lifestyle Approach to the Study of Violent Victimization', *Journal of Youth and Adolescence* 28: 105–19.



- Bourdieu, P. (1979) 'Les Trois Etats du Capital Culturel [The Three Stages of Cultural Capital]', *Actes de la Recherche en Sciences Sociales* 30: 3–6.
- Bourdieu, P. and Passeron, J. C. (1977) *Reproduction in Education, Society and Culture*. London: Sage.
- Bryk, A. S. and Raudenbush, S. W. (1992) *Hierarchical Linear Models*. Newbury Park, CA: Sage.
- Carbonaro, W. J. (1999) 'Opening the Debate on Closure and Schooling Outcomes', *American Sociological Review* 64: 682–6.
- Cohen, L. E. and Felson, M. (1979) 'Social Change and Crime Rate Trends: A Routine Activity Approach', *American Sociological Review* 44: 588–608.
- Coleman, J. S. (1961) *The Adolescent Society: The Social Life of the Teenager and Its Impact on Education*. New York: Free Press.
- Coleman, J. S. (1988) 'Social Capital in the Creation of Human Capital', *American Journal of Sociology* 94: 95–120.
- DiMaggio, P. (1982) 'Cultural Capital and School Success: The Impact of Status Culture Participation on the Grades of U.S. High School Students', *American Sociological Review* 47: 189–201.
- Durkheim, E. (1982 [1895]) *The Rules of Sociological Method*. New York: Free Press.
- Edwards, B. and Foley, M. W. (1998) 'Civil Society and Social Capital Beyond Putnam', *American Behavioral Scientist* 42: 124–39.
- Felson, R. B., Liska, A. E., South, S. J. and McNulty, T. L. (1994) 'The Subculture of Violence and Delinquency', *Social Forces* 73: 155–73.
- Goldstein, H. (1987) *Multilevel Models in Educational and Social Research*. London: Charles Griffin & Co.
- Granovetter, M. (1985) 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology* 91: 481–510.
- Hallinan, M. T. and Kubitschek, W. N. (1999) 'Conceptualizing and Measuring School Social Networks', *American Sociological Review* 64: 687–93.
- Hibell, B., Andersson, B., Ahlstrom, S., Balakireva, O., Bjarnason, T., Kokkevi, A. and Morgan, M. (2000) *The 1999 ESPAD Report: Alcohol and Other Drug Use Among Students in 30 European Countries*. Stockholm: CAN.
- Hirschi, T. (1969) *Causes of Delinquency*. Berkeley, CA: University of California Press.
- McLanahan, S. and Sandefur, G. (1994) *Growing Up with a Single Parent. What Hurts, What Helps*. Cambridge, MA: Harvard University Press.
- Mead, G. H. (1934[1962]) *Mind, Self and Society*. Chicago, IL: University of Chicago Press.
- Morgan, M. and Grube, J. W. (1989) 'Adolescent Cigarette Smoking: A Developmental Analysis of Influences', *British Journal of Developmental Psychology* 7: 179–89.
- Morgan, S. L. and Sorensen, A. B. (1999) 'Parental Networks, Social Closure, and Mathematics Learning: A Test of Coleman's Social Capital Explanation of School Effects', *American Sociological Review* 64: 661–81.
- Mullis, I. V. S., Martin, M. O., Beaton, A. E., Gonzalez, E. J., Kelly, D. L. and Smith, T. A. (1998) *Mathematics and Science Achievement in the Final Year of Secondary School: IEA's Third International Mathematics and Science Study (TIMSS)*. Chestnut Hill, MA: TIMSS International Study Center, Boston College.
- Paxton, P. (1999) 'Is Social Capital Declining in the United States? A Multiple Indicator Assessment', *American Journal of Sociology* 105: 88–127.
- Pong, S. (1997) 'Family Structure, School Context, and Eighth-Grade Math and Reading Achievement', *Journal of Marriage and the Family* 59: 734–46.
- Portes, A. (2000) 'The Two Meanings of Social Capital', *Sociological Forum* 15: 1–12.
- Putnam, R. D. (1995) 'Tuning in, Tuning out – The Strange Disappearance of Social Capital in America', *Political Science & Politics* 28: 664–83.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F. and Congdon, R. T. (2000) *HLM 5: Hierarchical Linear and Nonlinear Modeling*. Lincolnwood, IL: SSI.
- Schiller, K. S. (2002) *Self-report vs. Transcript-Derived Mathematics Grades for the First Two Years of High School: Evidence from the National Education Longitudinal Study of 1998*. University at Albany: Educational Administration and Policy Studies Working Paper.
- Snyder, E. E. and Spreitzer, E. (1989) *Social Aspects of Sport*. Englewood Cliffs, NJ: Prentice Hall.
- Thorlindsson, T. (1989) 'Sport Participation, Smoking, and Drug and Alcohol Use Among Icelandic Youth', *Sociology of Sport Journal* 6: 136–43.

- Thorlindsson, T. and Bjarnason, T. (1998) 'Modeling Durkheim on the Micro Level. A Study of Youth Suicidality', *American Sociological Review* 63: 94–110.
- Thorlindsson, T., Karlsson, T. and Sigfusdottir, I. D. (1994) *Um Gildi ithrotta fyrir islensk ungmenni* [The Significance of Sport for Icelandic Youth]. Reykjavik: Institute for Educational Research.
- Thorlindsson, T., Sigfusdottir, I. D., Bernburg, J. G. and Halldorsson, V. (1998) *Vimuefnaeysla ungs folks: umhverfi og adstaedur* [The Social Context of Drug Use among Icelandic Youth]. Reykjavik: Institute for Educational Research.
- Thorlindsson, T. and Vilhjalmsson, R. (1991) 'Factors Related to Cigarette Smoking and Alcohol Use Among Adolescents', *Adolescence* 26: 399–418.
- Vidarsdottir, G. B. (1996) *Ahrif felagslegra thatta a namsarangur, namsaform og menningaraud nemenda* [Social Effects on Educational Achievement, Educational Plans, and Social Capital Among Students]. Reykjavik: University of Iceland.
- Vilhjalmsson, R. and Thorlindsson, T. (1992) 'The Integrative and Physiological Effects of Sport Participation', *Sociological Quarterly* 33: 637–47.
- Warr, M. (1993) 'Parents, Peers and Delinquency', *Social Forces* 72: 247–64.
- Woolcock, M. (1998) 'Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework', *Theory and Society* 27: 151–208.
- Wrong, D. H. (1961) 'The Oversocialized Conception of Man in Modern Sociology', *American Sociological Review* 26: 183–93.

**Biographical Note:** Thorolfur Thorlindsson is Professor of Sociology at the University of Iceland. His research interests include alcohol and substance use among adolescents, sociological theory and sociology of knowledge.

**Address:** Department of Social Science, University of Iceland, Reykjavik Iceland. [email: thorotheo@hi.is]

**Biographical Note:** Thoroddur Bjarnason is Professor of Sociology at the University of Akureyri, Iceland. His research interests include alcohol and substance use among adolescents, crime and deviance and the sociology of religion

**Address:** Department of Social Science and Law, University of Akureyri, Akureyri, Iceland. [email: thorodd@unak.is]

**Biographical Note:** Inga Dora Sigfusdottir is Dean of the School of Health and Education at Reykjavik University. She is also the founder and Director of Research at the Icelandic Centre for Social Research. Her research interests include sociology of science, gender issues, substance use and prevention, as well as adolescents' health.

**Address:** School of Health and Education, Reykjavik University, Reykjavik, Iceland. [email: ingadora@ru.is]