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OPENING THE DEBATE ON CLOSURE AND SCHOOLING OUTCOMES*

Comment on Morgan and Sørensen

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Morgan and Sørensen (1999, henceforward M&S) provide an interesting and creative examination of Coleman's theory of intergenerational closure. In a previous study (Carbonaro 1998), I used the *same* data to examine the *same* issues that M&S examine, and I came to *different* conclusions. In this comment, I discuss three main issues that shed further light on the concept and effects of intergenerational closure: (1) How does closure work at the individual and the school levels? (2) Why do M&S and I have discrepant findings? (3) Are the National Education Longitudinal Study of 1988 (NELS) data adequate for testing Coleman's theory, and how might better data further our knowledge on this topic?

SOCIAL CLOSURE: INDIVIDUAL OR SCHOOL LEVEL EFFECTS?

In my previous study (Carbonaro 1998), "intergenerational closure" is defined as an *individual* attribute, reflecting an individual student's parents' connections to their children's friends' parents. If the effects of closure on educational outcomes are positive (as Coleman suggests), then students with high levels of closure will benefit, while those with low levels will not. In contrast, M&S view "social closure" as a *group*-level attribute that describes social relationships at the *school* (not individual) level. According to this view, students with low levels of individual closure who attend a school with a high *overall* level of closure will benefit as much as students with high individual levels of closure.

This difference highlights an important theoretical issue: How does closure impact educational outcomes? In my study, I adopted Coleman's claim that closure acts as a mechanism through which parents monitor, and ultimately control by way of rewards and sanctions, their children's behavior. When parents and their children's friends' parents share values that encourage high achievement, these connections will improve the educational outcomes for students with higher levels of closure. Thus, an individual student's connections to other members of the social network are of crucial importance: The loss of an individual's connection to the network decreases the capacity of the network to operate as a functional community (see Coleman 1991; Coleman and Hoffer 1987:225–31).

How would closure operate as a contextual variable at the school level? M&S put forth two arguments regarding how closure might affect achievement. First, they argue that closure impacts student achievement by influencing student effort. In contrast to Coleman, they propose that *less* closure may produce higher levels of achievement: "Heterogeneous flows of information . . . enable parents and other adults to increase student effort by directing students' attention toward higher standards of achievement . . ." (M&S p. 674). However, it seems likely that *only* students whose parents associate with "other adults" (rather than their friends' parents) will receive the "modeling" benefits of those other individuals, thereby making closure an *individual*-level effect. Second, M&S claim that Coleman believed that schools with more closed networks will be more responsive to parents' desires regarding the curriculum.[1] A greater degree of closure enables

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[1] I would argue that Coleman was more interested in the ability of school administrators to exert their authority in enforcing the norms present in the functional community within the school (see Coleman and Hoffer 1987:10–13).

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parents to influence school policy and thereby alter students' opportunities to learn, which ultimately affects achievement. This is truly a *contextual* effect: even students with low levels of individual closure will benefit if *all* students in their school receive increased opportunities for higher achievement.

Are these theoretical points relevant for empirical analyses of the importance of parental networks? If the researcher is simply interested in whether closure is associated with achievement, then the answer is "no"; either student- or school-level variables will show effects if they are present. However, if the researcher is interested in *how* (i.e., by what mechanism) closure impacts achievement, then my discussion is relevant. An analysis that controls for an effect at one level and not the other risks misinterpreting the effect. The most appropriate solution to this problem is to construct a two-level model that controls for closure at both the individual and the school levels. This technique separates individual-level effects from school-level effects, and thereby indicates how closure affects achievement.

Before discussing the empirical results of their study, I wish to discuss briefly M&S's notion of a "horizon-expanding" school. In "horizon-expanding" schools, parents do not know their children's friends' parents; instead, they cultivate ties with "other adults" in the community who provide (1) more heterogeneous information about student achievement norms and role models in society, and (2) increased learning opportunities outside school for students. Whereas Coleman believed closed social networks harness information to enhance achievement by means of social control, M&S claim that "horizon-expanding" schools increase achievement by exposing students to more varied expectations and opportunities.

I am skeptical about the plausibility of M&S's theory. First, I suspect only a very small proportion of students would benefit from more heterogeneous flows of information because pro-school attitudes are pervasive in our society. For example, in the NELS data, parents' aspirations for their children are very high: Almost 60 percent expect their child will *at least* finish college, and 86.5 percent expect their child will at least acquire some education beyond high school. This suggests that the overwhelming majority of students *are* exposed to high achievement norms and/or expectations at home. In light of this evidence, "other adults" are most likely providing students with "redundant information." Furthermore, M&S fail to explain the means by which other adults impact the lives of students. This is an important omission in light of prior empirical research: One of Coleman's main findings in *The Adolescent Society* (1961) was that the influence of peer groups overwhelmed the influence of adults (also see Eckert 1989). Finally, while studies of "summer learning" suggest that learning outside of school is an important factor affecting student achievement (Alexander and Entwistle 1996; Heyns 1978), it is unlikely that many students will cross the class and racial boundaries that restrict access to these resources.

RESOLVING EMPIRICAL DISCREPANCIES

In my 1998 study, closure had a modest, positive association with twelfth-grade math achievement. M&S found that "social closure" does not affect change in math scores from the tenth to twelfth grade. Because we used the same data, it is worth investigating why our results differ. The most important difference between their analysis and mine is the omission of one variable in my analysis: friends in school. Before discussing this issue, I will first comment on some important issues regarding M&S's analyses.

M&S create their measure of "social closure" by taking the square root of the product of *friends in school* and *parents know parents*. M&S use this interaction term without including their main effects in the model.[2] By doing so, they assume that the main effects are zero. However, if the main effects are *not* zero, then much of the ob-

[2] M&S do not explain why they do not include the main effects in their models. I assume their decision has to do with the high degree of multicollinearity between the main effects and the interaction term. My data reveal that the correlation between M&S's measure of "social closure" and each of the main effects is roughly .9.

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served association between "social closure" and math achievement is spurious because the coefficient for "social closure" reflects the variable's high correlation with the omitted main effects rather than a distinct multiplicative effect. Thus, M&S's measure of "social closure" confuses rather than clarifies matters.

M&S are concerned with *school*-level effects rather than *individual*-level effects. They create their school-level indicators of social closure by aggregating student-level variables *(parents know parents* and *friends in school*) to the school level. This decision is problematic for two reasons. First, many schools in the NELS data set have too few students to provide statistically reliable estimates of school level characteristics. Second, the within-school samples are not necessarily representative of the high schools in NELS because students were randomly selected in the eighth grade, *not* in high school. These problems call into question the validity of M&S's estimates of school-level effects. M&S should at least reassure the reader that their indicators are reasonably valid and that their results are not seriously compromised by these problems.

The most significant shortcoming of M&S's analyses however, involves their claims about "horizon-expanding schools." They characterize horizon-expanding schools as having (1) a lack of intergenerational closure (i.e., parents don't know their child's friends' parents) and (2) higher levels of contact between parents and "other adults." M&S have no data on contacts between parents and "other adults." They simply *assume* schools with low levels of closure are also characterized by high levels of contact with "other adults." However, in the absence of data on this question there is no reason to believe this is the case. Using the NELS data it is impossible to distinguish "norm-enforcing" from "horizon-expanding" schools and M&S's conclusion that "the benefits . . . of horizon-expanding schools outweigh those of norm-enforcing schools . . ." (p. 674) is not supported by their empirical results.

These criticisms notwithstanding, M&S *do* make an important discovery that bears on my findings. M&S use *friends in school* in addition to *parents know parents* (the variable I use to measure closure) in their analysis. I did not consider *friends in school* for my analysis because, in viewing closure as an individual-level variable, I assumed that students' peers are important regardless of whether they attend their school or not. When M&S enter *parents know parents* and *friends in school* simultaneously in their analysis (see Model 4 of Table 3), they find that *friends in school* has a positive effect on achievement and *parents know parents* has a negative effect. Because these two variables are positively correlated (r = .583), it is possible that the association between closure and achievement that I found in my analysis is spurious. To check this possibility, I present in Table 1 some additional analyses to augment the results reported in my 1998 paper.

Model 1 is a regression equation that includes individual-level indicators for both *friends in school* and *social closure*, along with a host of other individual-level, student background indicators.[3] In this model, closure has a slightly negative but statistically insignificant effect. For comparative purposes, I removed the *friends in school* measure from Model 1 and ran the model again. The closure coefficient becomes positive (.121) and statistically significant ($p = .027$). Thus, it appears that the positive association between social closure and math achievement observed in my study was indeed spurious.

To address the issue of student-level versus school-level effects, Model 2 adds M&S's school-level measures to the model. Although earlier I argued that these measures are unsatisfactory, readers will be interested in these results, so I will provide them. To account for the multilevel nature of the NELS data, I used hierarchical linear modeling (HLM) to produce the results displayed in Table 1. In Model 2, the only significant

[3] The background indicators include all those I used previously (Carbonaro 1998) as well as eighth-grade math score and dummy variables for school sector in order to make my re-analyses more comparable to M&S's. I also included a dummy variable to indicate twelfth-grade dropout status, and dummy variables indicating the number of times a student transferred schools because these variables explain some of the effect of *friends in school*.

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Table 1. Unstandardized HLM Coefficients from the Regression of Social Closure on Twelfth-Grade Math Scores: National Education Longitudinal Study of 1988

Independent Variables	Model 1	Model 2
Student-Level Measures		
Social closure	–.020	.013
	(.064)	(.069)
Friends in School	.264**	.178*
	(.065)	(.069)
School-Level Means		
Social closure	—	–.244
		(.193)
Friends in school	—	.692**
		(.182)

Note: Numbers in parentheses are standard errors. Sample size for each regression is 9,346. Regressions are weighted. In Model 1, all variables are centered at the grand mean. In Model 2, the individual-level indicators are not centered, while the school-level variables are centered at the grand mean. The following independent variables were included in both models: eighth-grade math score, base year SES, dummy variables for sex, Catholic school, other nonpublic schools, single-parent family, stepfamily, other family, region, rural/urban residence, race-ethnicity, twelfth-grade dropout status, transferred schools once, twice, and three times.

*$p < .05$ **$p < .01$ (two-tailed tests)

indicators are the individual-level and the school-level measures of *friends in school*. Neither the individual-level or the school-level indicator of social closure is statistically significant.

To summarize, M&S and I now agree that the NELS data do *not* support Coleman's theory of the positive effects of intergenerational closure on achievement. Nevertheless, my findings do not support their claim that social closure has a negative effect on achievement. While both studies find that the number of friends in school has a positive impact on achievement, it is unclear that this has any bearing on Coleman's theory regarding intergenerational closure.

REVISITING THE DATA: LIMITATIONS AND POSSIBILITIES

Are the NELS data adequate to test Coleman's theory? I believe two types of information are necessary to test his theory: (1) the *number* of connections that parents have with their child's friends' parents, and (2) how parents *use* these connections. Do parents use their connections with other parents to (a) gather information about their child's activities in and out of school, (b) enforce commonly held values, and (c) exercise the use of sanctions and rewards for commonly accepted behaviors? Although the NELS data have some limited information on the *size* of parent-child-friend-parent networks, it has no information on *how parents use those connections*. The question remains, what do we learn from information about the former when we have no information on the latter?

Suppose we group closed networks into three categories: (1) *nonfunctional* communities in which parents know their child's friends' parents, but do not share information or enforce norms; (2) *dysfunctional* communities in which closed networks promote values and norms that discourage school success; and (3) *functional* communities in which closed networks enhance school achievement (as Coleman theorized). It is impossible to distinguish these categories from one another with the NELS data. If, for example, 70 percent of closed networks are nonfunctional, 15 percent are dysfunctional, and 15 percent are functional, the closure coefficient would be zero. However, this finding would be misleading because, in reality, the impact of social closure depends on the values and behaviors of the actors within the network. In this case, closure's importance is obscured by the lack of information on *how parents use their network connections*.

M&S tacitly acknowledge this when they suggest that students who are recent immigrants or poor urban minorities may actually be harmed by high levels of closure when the norms and values of the network do not encourage high levels of achievement. Furthermore, their finding that closure has a positive (although nonsignificant) effect in Catholic schools and a negative effect in public schools may indicate that functional communities are more prominent in Catholic schools, while dysfunctional communities are more likely to form in public schools.

To resolve these ambiguities, future researchers must collect data on how parents in closed networks interact with one another, and also gather information on parents' val-

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ues. While qualitative research may offer new insights, survey instruments can certainly capture many of the attitudes and behaviors of actors within these networks. Without this information, it seems unlikely that we have given Coleman's theory a fair assessment.

While both papers discussed here have their shortcomings, they both inform future research. First, in testing Coleman's theory, both papers advance some theoretical and conceptual issues about the importance of parent-child networks and their role in shaping educational outcomes. Second, both papers show the shortcomings of the NELS data and illustrate what additional information is needed to perform a more appropriate test of Coleman's theory. I hope future researchers will build on our efforts and further our knowledge of how social networks affect student outcomes.

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