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ABSTRACT
                A study tested two hypotheses aimed at explaining the
"self-fulfilling prophesy" that results when students are divided
into ability group systems. The differential instruction hypothesis
explains achievement differentials produced by grouping systems in
terms of the differential instruction received by students. The peer
differentials hypothesis argues that differential outcomes in schools
are influenced by patterns of peer allocation and influence. Subjects
were fourth grade students in a single urban school. Two types of
instructional grouping systems were analyzed: within-classroom
grouping for reading instruction and across-classroom ability
grouping. Although the self-fulfilling prophecy was at work in both
grouping systems, the two forms of grouping affected the processes of
peer allocation and differential instruction differently.
Instructional processes and peer group formation tended to place
students in lower strata of the cross-classroom ability grouping at a
disadvantage, but to work in favor of students in the lower strata of
the within-classroom reading group system.—These results have
implications for grouping research strategy and future research on
grouping. (JL)

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SYSTEMS OF ABILITY GROUPING AND THE STRATIFICATION OF ACHIEVEMENT IN ELEMENTARY SCHOOLS*

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SYSTEMS OF ABILITY GROUPING AND THE STRATIFICATION OF ACHIEVEMENT IN ELEMENTARY SCHOOLS

In recent years, sociological attempts to explain the differential achievements of students have increasingly focused on internal, organizational features of schools, particularly tracking and grouping systems (Rosenbaum, 1975; Alexander and McDill, 1976; Alexander et al., 1978; Eder, 1981). The findings in this literature point to the existence of a "self-fulfilling prophesy" in grouping systems (Rist, 1973) that has important implications for the stratification of achievement outcomes in the American educational system. For example, recent studies of ability grouping in high schools (Alexander and McDill, 1976) and in elementary schools (Rist, 1973; Weinstein, 1976) have found significant effects of group assignment on student achievement, even when prior ability or achievement are controlled, with students in high ranking groups gaining an achievement advantage over students in low ranking groups by virtue of their group placement. Thus, placement in ranked instructional groups has direct effects on educational outcomes and tends to reinforce initial inequalities in school achievement.

An important research problem is to explain the effects of ability grouping on achievement. Recent attention has focused on two alternative explanations: the differential peers hypothesis and the differential instruction hypothesis. The differential peers hypothesis was developed in studies of high school tracking (Alexander and Eckland, 1975; Alexander and McDill, 1976) where it was found that ability group systems stratified peer contexts in schools and that peer contexts affected educational outcomes. The differential instruction hypothesis grew out of teacher expectation research in elementary schools, where it was found that

teachers produced achievement differentials in grouping systems by treating students in higher ranking instructional groups more favorably than students in low ranking groups (Brophy and Good, 1970; Rist, 1973; Barr and Dreeben, 1977).

This paper examines the differential peers and differential instruction hypotheses using data on elementary school students. The choice of elementary schools as a research setting was deliberate. Achievement differentials emerge very early in students' educational careers (Rist, 1973) and widen as cohorts progress through schools (Chesler and Cave, 1981). Thus, the analysis of how early achievement differentials emerge and are maintained is central to the study of educational stratification. At the same time, although researchers have begun to recognize the central role of ability group systems in producing achievement differentials, little research exists comparing the effects of different types of grouping systems on peer contexts, instructional processes, and academic outcomes. Thus, a second reason for choosing elementary schools as a research site is that these schools manifest a great variety of instructional grouping systems and thus are fertile ground for analyses of the effects of different types of ability grouping arrangements on school outcomes.

An important feature of the schools studied here was that they contained the two most common types of ability group systems found in elementary education. One system sorted students into classrooms by ability and was highly similar to the tracking systems found in high schools; another grouped students within classrooms and was used during reading instruction. In the analysis below, the effects of these two types of grouping systems on peer contexts, differential instruction, and reading achievement are examined.

Two questions are of interest. The first is whether both types of ability group systems have direct effects on achievement. A second question is whether both systems differentiate peer contexts and teacher treatments in a way that reinforces these direct effects. Do both the cross-classroom ability group system and the within-classroom system stratify peer contexts to the disadvantage of students in lower groups? And do both systems differentiate learning contexts in a way that further disadvantages low achieving students? These questions have important implications for a general theory of ability group effects on educational stratification. Reviews of the instructional grouping literature often fail to differentiate between grouping systems that operate across classrooms and those that operate within and assume that both types of systems differentiate the schooling experiences of children in a way that disadvantages children in low ranking groups (e.g. Rist, 1973; Eder, 1981).

BACKGROUND

Research on ability grouping dates to the early 1900's (Findlay and Bryan, 1971), but it was not until the 1970's that consistent evidence of the effects of ability grouping on student achievement emerged. In part, the lack of consistency in early studies was due to the research designs employed. Most studies were experimental comparisons of schools with and without classroom level ability group systems. For a number of methodological reasons, including poor experimental controls, these studies failed to find consistent evidence on whether achievement scores at the school level were affected by ability grouping (Findlay and Bryan, 1971).

In the 1970's, research designs changed. Instead of comparing

school averages, researchers compared the performance of students in high and low ranks within a single type of grouping system. In these studies, clear findings emerged demonstrating the existence of a self-fulfilling prophesy (Rist, 1973). For example, two of the most important quantitative studies (Alexander and McDill, 1976; Weinstein, 1976) demonstrated that initial inequalities in achievement were actually increased over time by ability group systems.

Differential Instruction

With the finding of direct grouping effects on achievement, a search began for intervening processes that could account for the self-fulfilling prophesy.

One line of research has attempted to explain the achievement differentials produced by grouping systems in terms of the differential instruction received by students. Research in this area can be divided into two major branches. One branch has focused on the nature of teacher-student interactions in classrooms, while the other has tended to explain achievement as a function of pacing through the curriculum.

The first type of study, which focuses on differential teacher-student interaction, has been conducted in a type of ability group system found almost exclusively in elementary schools. This system, which operates within classrooms, sorts students into small, ability based groups for instruction in a basic skill area. Austin and Morrison (1963) estimated that as many as eighty percent of the elementary classrooms in this country use this type of grouping system during reading instruction.

The results of these studies often show that teachers treat students in different instructional groups differently, and that on many dimensions of teacher behavior, students in higher level groups are treated more

favorably during instruction than are students in lower groups. For example, Brophy and Good (1970) found that good performance was more often elicited from students and reinforced by teachers in higher level groups than in lower level ones, while Rist (1973) observed that teachers spent more instructional time and interacted more with students in higher level groups. The assumption in these studies has been that the differential treatment of students by teachers promoted achievement differentials.

An alternative version of the differential instruction hypothesis can be found in Barr and Dreeben's (1977) discussion of "pacing", defined as the rate at which new instructional material is introduced to students. The basic theoretical ideas that Barr and Dreeben (1977) used in their analysis were formulated by Dahllof (1971) to explain achievement differentials in ability group systems that operate across classrooms. In comparison to the ability group systems that divide classrooms internally, this type of system sorts students into homogenous ability groups at the classroom level. Moreover, this form of ability grouping is less common in elementary schools than are within-classroom ability groups used for instruction in basic skills areas. In fact, cross-classroom ability grouping is much more common in high schools, where it manifest itself in the form of tracking. Nevertheless, Findlay and Bryan (1971) found that about twenty-five percent of the school districts in this country use cross-classroom ability grouping (tracking) in at least some elementary grades.

Barr and Dreeben's (1977) contribution to the grouping literature was to couple the idea of pacing to Dahllof's (1971) idea of "steering groups" and to suggest an explanation for the differential achievement in grouping

systems. Dahllof argued that teachers' decisions about when to introduce new material into lessons was shaped by when the average students in a classroom--the "steering group"--achieved mastery. Since average students in higher ability classrooms master comparable materials faster than average students in lower ability classrooms, students in higher ability classrooms are paced faster than students in lower ability classrooms and therefore experience higher achievement gains. Some indirect evidence on the validity of this hypothesis at the classroom level has been reported by Beckerman and Good (1981).

While both versions of the differential instruction hypothesis elegantly explain the pattern of differential achievement produced by elementary school grouping systems, the empirical evidence in support of the hypothesis is not entirely consistent. For example, replications of Brophy and Good's (1970) study of teacher behavior found that students in lower, rather than higher, reading groups often receive more favorable treatment (Brophy and Good, 1973; Weinstein, 1976). Similarly, a recent study of pacing in elementary school reading instruction (Filby and Barnett, 1982) failed to confirm the hypothesis that pacing was faster in higher level reading groups and, in fact, found a tendency toward faster pacing in lower groups.

This recent research raises doubts about the proposed intervening processes thought to bring about a self-fulfilling prophesy in grouping systems. In particular, much of the research on within-classroom grouping fails to find consistent evidence that differential instruction reinforces initial achievement differentials. At the same time, research on differential instruction in ability group systems that operate across classrooms is notably absent in the recent research on instructional grouping.

Peer Differentials

An alternative approach to explaining achievement differentials in grouping systems can be found in the high school tracking studies of Alexander and his colleagues (Alexander and Eckland, 1975; Alexander and McDill, 1976; Alexander et al., 1978). These studies argue that differential outcomes in schools are influenced by patterns of peer allocation and influence. In particular, tracking studies show that students in high ranking, college-bound tracks acquire higher ability friends, and that higher ability friends positively affect achievement, even when the effects of grouping and ability are controlled.

There is some evidence that similar processes may occur in elementary schools and that the tracking findings can be extended to include within-classroom grouping systems. For example, Hallinan and Tuma (1978) found that grouping arrangements within elementary school classrooms affected friendship formation among students, and Epstein (1978) demonstrated that peers affected some aspects of sixth grade students cognitive and normative development. Thus, a possible explanation of how grouping systems in elementary schools produce achievement differentials is that students in higher level groups obtain friends of higher ability and these friends act as resources that increase student achievement.

Despite the appeal of a peer group approach to differential achievement, an extension of the tracking findings must be made cautiously. An initial problem is that evidence on peer stratification comes from studies of tracking in high schools. In elementary schools, evidence of tracking effects on friendship are unavailable, and studies of how within-classroom groupings stratify peer contexts are equivocal (Bossert, 1979). Moreover, even if both within- and across-classroom grouping systems stratify peer

ability contexts, there is some evidence to suggest that the consequences of such stratification on younger children's instructiona' outcomes may be weak. For example, Epstein (1978) found peer effects on many aspects of sixth grade students social development, but did not find that students with higher achieving friends had higher achievement. In contrast, such effects were present at higher grade levels in her data (cf. also, Alexander and McDill, 1976).

The failure to find direct effects of peer ability context on student achievement does not rule out the possibility that peer stratification has indirect effects on achievement. For example, a common assumption in school effects studies is that peer influence occurs through the lateral transmission of values (Miller and Gentry, 1980). Using this hypothesis, it is possible to argue that peer contexts affect student values and activities and that these, in turn, affect student achievement. For example, prior research indicates that elementary school students' achievements are affected by their work habits and their classroom conduct (Entwistle and Hayduk, 1981; Haller and Davis, 1981). Perhaps these aspects of student behavior are affected by friendship contexts.

Types of Grouping Systems

The review thus far indicates an interesting shortcoming of the grouping literature. Studies of tracking, the major body of recent literature that examines across-classroom ability grouping, have been concerned with processes of peer allocation and influence but have largely ignored the problem of differential instruction. On the other hand, studies of within-classroom ability grouping have, by and large, focused on differential instruction and neglected to study problems of peer allocation and influence. Thus, although both literatures demonstrate

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direct effects of group rank on achievement, the issue of whether these effects result from the same intervening processes remains unresolved.

At least some evidence, however, suggests that different types of ability group systems affect patterns of peer association and instructional activities differently. For example, Findlay and Bryan's (1971) review of the literature implies that tracking systems (which stratify classrooms on the basis of ability) may have stronger effects on segregation and promote different patterns of peer association than ability group systems that operate within classrooms. Thus, the equivalence of grouping systems should not be assumed. Rather, empirical analyses are needed.

PROCEDURES

The setting for the present study was a large, urban school district in Texas that used both cross-classroom and within-classroom ability grouping in its elementary schools. Cross-classroom ability grouping began in the fourth grade when qualified students had the opportunity to participate in a program for advanced students. Students whose overall scores on the Iowa Test of Basic Skills (ITBS) were in the top twenty-five percentiles were eligible to join this program, and those who joined received all of their instruction in a self-contained classroom.

In both the high and low ability classrooms, students were grouped by ability for instruction in reading. The basal reading series used throughout the district was structured into levels, with different levels corresponding to different materials. Tests were used to determine students' reading levels at the beginning of the year, and for movement from level to level during the year, and students were grouped for instruction within classrooms by level. The levels varied between 1 and 21, and this number, which corresponds to the actual groups within classrooms, is used as a measure of

the ranking of a student's reading group.

Data on students were gathered between September and April of the 1980-1981 school year using a purposive sample of six elementary schools that reflected the various neighborhoods of the city. Within these six schools, ten fourth-grade classrooms were selected for observation. The study combined two types of methodology. First, thirty hours of systematic observations were conducted within each classroom in order to obtain measures of teacher-student interaction and measures of existing friendship patterns among students. Other data were gathered from school records, especially report cards.

These data will be used to estimate a "school process" model shown in Figure 1. The model shows only those variables that will be used in the analysis. Since there was substantial pupil mobility at some of the school sites, and because the research design required achievement data for two different years, there is complete information on 148 of the pool of over 200 students on whom some data were collected. We performed the same analyses using varying sample sizes and have found that although parameter estimates and their standard errors vary slightly from sample to sample, substantive results remain consistent. Appendix A shows the zero order correlation matrix and means and standard deviations for all variables using the 148 case sample.

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FIGURE 1 ABOUT HERE
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Exogneous Variables

As Figure 1 shows, the exogenous variables in the model include two measures of student social status, one measure of prior student achievement, and two measures of instructional grouping assignments. The social

status variables are a measure of students' ethnic backgrounds (ETHNIC),
and a measure of family income (INC). ETHNIC is a dummy variable coded
0 if students are Spanish-surnamed or Black and 1 if students are Anglo.
Data on Black and Spanish-surnamed students were collapsed into a single
category after intial regression analyses revealed similar relationships
of ethnic group membership to outcomes for each group when compared to
Anglos. INCOME was derived from data on participation in the National
School Lunch Program. The variable was coded 0 if a student received a
free lunch, 1 if a student received a reduced-price lunch, and 2 if a
student received no reduction. While this variable is an imperfect proxy
for family income, the zero order correlation between it and reading
achievement scores (.37) is very similar to correlations of SES measures
to achievement scores found in other studies of both high schools (Alex-
ander and McDill, 1976) and elementary schools (Haller and Davis, 1981).

Grouping Assignments

Also included as exogenous variables are two measures of ability
group assignment. A student's cross-classroom assignment (TRACK) is
a dummy variable coded 0 if a student is assigned to a lower ability
classroom and 1 if a student is assigned to a higher ability class. A
student's within-class ability group assignment, the student's reading
group (RDGROUP), is simply the intial reading level of the student at
the beginning of the year. An interesting feature of reading group
assignments is that they were highly stable throughout the year. The
movement of students through the reading curriculum resembled a "batch"
technology in which students were treated on the basis of their initial
group assignment. Few students advanced faster than other members of
their initial group, as is indicated by a correlation of .93 between

initial reading level assignment and final reading level assignment.

Because grouping assignments are treated as exogénous variables in
the model, the relation between social status and group assignment is
not formally examined here, although it is worth noting that a preliminary
analysis of this issue gave results consistent with research showing very
weak effects of social status on grouping assignment (Heyns, 1974; Alexan-
der et al., 1978; Haller and Davis, 1981). When group assignment variables
were regressed on background variables, the effects of prior reading ach-
ievement, as measured by third grade ITBS reading scores, far outweighed
the effects of ETNIC and INC in both equations.

Peer Contexts

The model shown in Figure 1 allows us to evaluate some aspects of the
differential peers hypothesis. The first step is to examine the effects of
exogenous variables on the average achievement of a student's friends
(FRACH). This contextual variable has received considerable attention in
tracking studies and was examined in Epstien's (1978) analysis of sixth
graders. There is, however, an important difference between the measure
of friendship used in this analysis and those previously employed. Most
previous studies have gauged friendship relations through the use of
sociometric questionnaires. In this study, however, friendship group
memberships were determined by ethnographic observations of playground,
lunchroom, and before and after school interactions among students. The
friendship maps obtained through this process were then submitted to
teachers for validation. FRACH was constructed by averaging the fourth
grade ITBS reading scores of the members of a student's friendship group
(excluding the focal student's score). In this first step, then, we are
interested in whether grouping assignments stratify friendship contexts.

In the next stage of the model, two measures of student behavior are included as dependent variables. The two variables are teachers assessments of students' conduct (CONDUCT), and teachers assessments of students' work habits (HABITS). The data for both measures were gathered from report cards. Both were scored so that higher scores represent better conduct and work habits, and both were constructed by summing data from the entire period of the study. A previous study of first graders found that report card assessments of conduct affected students' grades (Entwistle and Hayduk, 1978), while Haller and Davis's (1981) study of fourth through sixth graders showed a correlation between report card assessments of work habits and student achievement. The student behavior variables are included in the model in order to evaluate the lateral transmission of values hypothesis, which suggests that peer contexts affect student behaviors.

Differential Instruction

It is also possible to examine the differential instruction hypothesis using the model. Two variables measuring teaching behavior are included as dependent variables at the same stage in the model as the variables measuring student behavior. The two teaching process variables include a measure of curriculum pacing (PACE) and a measure of academically focused teacher-student interaction (TSINT). The pacing variable was derived by counting the number of levels in the reading curriculum that a given student covered during the study. Since progress through reading levels involves movement through reading materials, this measure seems to adequately capture the idea of pacing as used by Barr and Dreeben (1977). The teacher-student interaction variable was derived from observational data and is a count of the number of academically focused interactions, both student and teacher initiated, observed in reading classes. Disciplinary interactions are excluded.

Achievement

The final dependent variable in the model is student reading achievement as measured by the reading section of the ITBS. This variable, called ITBS2, represents a student's fourth grade achievement as measured during the month of April, the month our observational work concluded. ITBS1 is the lagged value for the dependent variable, and is a student's ITBS reading score as of November of the third grade. All scores are reported as national percentile rankings. In this final portion of the model, we are interested in the effects of all exogenous and intervening variables on reading achievement.

RESULTS

The model shown in Figure 1 is largely heuristic and was formulated to reflect both past findings from models of high school tracking and recent research on grouping in elementary schools. Because our efforts are exploratory, a number of shortcomings in the model should be noted. First, the model is fully recursive and thus ignores possible reciprocal effects that may complicate school processes. In addition, the model is cross-sectional, with only prior achievement being included as a lagged variable.

These aspects of the design and model are especially relevant to the estimation of peer effects. OLS regression techniques are used to estimate the model's parameters, a technique that does not allow us to separate peer influence processes from peer selection processes in the analysis of peer effects on behavior and achievement (Duncan et al., 1968; Epstien, 1978). Nevertheless, with OLS procedures, relationships between peer contexts and student outcomes can be detected (Duncan et al., 1968: 120), and prior research suggests that only a small bias will be introduced by our estimation procedure (Cohen, 1977).

A second feature of the model should be noted. The set of variables measuring teaching processes and student behavior have been blocked in the diagram shown in Figure 1 in order to show that relationships among these variables will not be investigated. Our position is that specification of relationships among variables internal to the model is exceedingly complex and best left for furture work. Our purpose here is merely to explore how these factors are affected by various grouping procedures and whether they affect student achievement.

Table 1 about here

Differential Peers and Achievement

Results of the analysis are shown in Table 1. The first hypothesis discussed is the differential peers hypothesis, which holds that ability group assignments stratify friendship contexts, with students in higher ranking groups obtaining friends of higher ability. The major dependent variable in this analysis is FRACH, the average ability of a student's friendship group. There is only partial support for the differential peers hypothesis in the data. Table 1 confirms that a student's TRACK assignment stratifies peer ability contexts, but it also shows that RDGROUP rank has very little effect.

The findings are interesting in a number of respects. We turn first to the effects of background variables on friendship stratification. The finding that ETHNIC affects peer stratification is consistent with high school studies; the failure of income and prior achievement to affect peer stratification, however, are inconsistent (cf. Alexander and McDill, 1976; Alexander et al., 1978). The differences between the present findings and those in tracking studies are probably only partly due to

differences in sample size and the use of different indicators. An ethnographic study of friendship choices using two classrooms from the present sample, for example, sheds light on why friendship formation may differ in elementary and secondary schools. Suggs (1981) found that elementary school students attach little importance to achievement when selecting friends, a finding that is consistent with Hallinan and Tuma's (1978) study of elementary students, but inconsistent with the results of tracking studies.

More relevant to this paper are the effects of grouping assignments on friendship stratification. The findings demonstrate that the different types of grouping systems affect peer stratification differently. As with high school tracking, across-classroom ability grouping (TRACK) at the elementary level apparently stratifies friendship ability contexts. But within-classroom ability grouping (RDGROUP) does not. We believe there is an ecological explanation for these findings. In related research, we found that one of the largest determinants of friendship formation among students in this sample was membership in the same classroom (Rowan and Miracle, 1982). To the extent that ability grouping in this school system sorted students into classrooms by achievement, it tended to constrain the achievement levels of the pool of students from which friendship choices were made and thus stratified friendship groups by ability.

Table 1 also presents information on the lateral transmission of values hypothesis, which argues that peer groups socialize students. The results of the present analysis give some support to this position, although the findings are somewhat surprising. For example, while the average achievement level of a student's friendship group (FRACH) has reasonably strong effects on both CONDUCT and HABITS, the effects are

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not in the same direction. Students with higher ability friends tend to
have better habits; but they have worse conduct. The effect of FRACH
on CONDUCT, which is unexpected, could be explained in several ways.
For example, it could arise from the imposition of higher standards by
teachers on students from higher ability cliques, or, alternatively, the
relationship could arise because higher ability students finish their
lessons earlier than others and have more time to make "mischief" with
their friends. This latter interpretation seems the most sensible to
us. During a large amount of the time we observed students, they were
engaged in independent seatwork, and the maintenence of discipline among
seatworkers was a problem for teachers in this sample.

It is interesting to note that the effects of ability group assign-
ments on CONDUCT and HABITS are nearly as large as the effects of friend-
ship context, although they are not as statisitically significant. More-
over, the effects are consistent across types of grouping systems. In
both cases, members of higher ranking groups had higher CONDUCT and
HABITS scores. Thus, ability groups, as well as friendship groups,
apparently have socializing consequences for student behavior, and these
effects occur independently of the effects of social background, which
appear to have independent effects as well. Given the nature of these
data, however, the above findings should be advanced tentatively. In
particular, the relationship between ability group assignments and student
behavior needs further investigation. It is possible that student behavior
and group assignments are reciprocally related. Thus, little causal
significance should be attributed to the findings.

While the evidence to this point shows that classroom level ability
grouping (TRACK) stratifies peer achievement contexts, and that these

contexts affect student behavior, the differential peers hypothesis breaks down when the effect of peer ability context on achievement is examined. As Table 1 shows, FRACH has virtually no direct effect on reading achievement. Nor do student behaviors have very large effects on achievement, thus ruling out the possibility that peer contexts have important indirect effects on achievement. The finding of weak direct effects of FRACH on achievement is consistent with Epstein's (1978) studies of sixth grade students and points to important differences between school processes at different levels of the educational system. In studies of high school tracking, peer achievement contexts had significant effects on numerous educational outcomes (Alexander and McDill, 1976; Alexander et al., 1978).

In general then, the differential peers explanation of achievement differentials has not been sustained by this analysis. While there was evidence that tracking in elementary schools stratifies peer ability contexts and that peer ability contexts affect student behavior, neither peer contexts nor student behavior affected achievement. Thus, there is little evidence that the self-fulfilling prophesy in elementary school grouping systems arises from a pattern of differential peer influence.

Differential Instruction and Achievement

Table 1 also addresses the differential instruction hypothesis, which predicts that students in lower level groups receive less direct instruction and are paced more slowly than students in higher level groups. The results on this point are quite striking, but not entirely consistent with the hypothesis.

Before turning to the effects of grouping systems on differential instruction, however, it is worth noting the effects of background variables

on the instructional process. Anthropologists who have observed the self-fulfilling prophesy have sometimes argued that differential instruction is based on students' social backgrounds, with teachers providing more favorable instruction to students from higher social backgrounds (Rist, 1973). There is some evidence in this data that background variables do affect the instructional process, and that instructional processes disadvantage lower income students. For example, the data show that students from higher income families are paced faster than lower income students and that pacing affects achievement. Moreover, this effect is independent of a student's prior achievement, which also affects pacing.

When attention turns to the effects of grouping systems, a pattern of differential instruction is once again evident in the data. However, the evidence is not entirely consistent with the self-fulfilling prophesy argument since the pattern of differential instruction differs depending on the type of grouping being examined. Consistent with the self-fulfilling prophesy idea, students in lower ability classrooms (TRACK) were paced more slowly than students in higher ability classrooms. Moreover, as Table 1 shows, pacing affected achievement. But in the system of within-class grouping (RDGROUP), group ranking worked in the opposite direction. Students in lower level reading groups were involved in more direct interaction with teachers and were paced faster than students in higher level reading groups.

Thus, the results once again illustrate the differences between types of grouping systems. In this school system, the tracking system apparently worked to the disadvantage. of students in lower groups, while the system of grouping within-classrooms apparently worked in a compensatory fashion. The findings pose an interesting paradox that requires further discussion. They

suggest that Dahllof's (1971) notion of steering groups, which was formulated
to explain achievement differentials occurring in cross-classroom ability
group systems, does explain pacing differences at this level. But within
classrooms, a different process seems to occur. The effect of RDGROUP on
pacing suggests that, within classrooms, teachers attempt to bring lower
students up to the level of higher achieving students through compensatory
actions. These latter findings are consistent with those of Brophy and
Good (1974) and Weinstein (1976) on differential instruction in intraclass-
room grouping systems.

In summary, then, the data do not give strong support to the differen-
tial instruction explanation of achievement differentials in grouping systems.
While there was clear evidence that group rank affected the way students
were taught, the pattern of differential instruction did not always reinforce
initial inequalities in achievement. Indeed, in the case of within-class
grouping, differential instruction appears to have partially compensated
for initial inequalities.

The Direct Effects of Grouping

Despite the weak support for the two proposed explanations of the
self-fulfilling prophesy, the data do confirm prior research demonstrating
direct grouping effects on achievement. Both TRACK and RDGROUP have large,
direct effects on achievement, even controlling for prior achievement,
with students in higher groups obtaining an achievement advantage over
students in lower groups by virtue of their group placement.

In prior research, investigators have been uncertain as to whether
the direct effects of group assignments on achievement reflected some
aspect of ability that led to students initial placement or whether the
effects could be explained by reference to contextual characteristics of

the learning environments in different group settings (e.g. Weinstein, 1976). This analysis, although unable to demonstrate powerful effects of differential learning contexts on achievement outcomes, does appear to resolve the question of whether grouping effects occur simply because group assignments are alternative measures of ability. There is high multicollinearity among TRACK, RDGROUP, and ITBS1, which perhaps inflates the standardized regression coefficients in equations predicting ITBS2. But the data clearly suggest that grouping effects and ability effects (as measured by prior achievement) are separate. For example, RDGROUP and TRACK have effects that differ in direction both from one another and from prior achievement in several equations. This suggests that these effects are not simply achievement effects and that the problem of how to "explain away" grouping effects remains for future investigations.

DISCUSSION

Despite sampling and research design considerations unique to this study, the findings presented here are consistent with a large number of prior studies on grouping systems and their effects. Thus, a number of conclusions about instructional grouping in schools may be advanced.

The first conclusion concerns the research strategy of most grouping research. Much past and present work has proceeded with two largely unexamined assumptions: that different types of grouping systems have equivalent effects on learning processes and contexts; and that the differentiation of socialization contexts brought about by grouping systems necessarily reinforces the direct effects of grouping on achievement. The findings reported here call both assumptions into question and suggest some new strategies for grouping research. First, there is a need to explore differences in learning processes and contexts in different types of

grouping systems. The findings reported here, for example, demonstrate that ability group systems that stratify elementary school classrooms produce effects similar to those found in high school tracking systems. But these results do not hold for grouping systems within classrooms. Second, researchers single-minded pursuit of processes and contexts that reinforce direct grouping effects, while important in light of the large direct effects of grouping, may be overly emphasized. More attention needs to be paid to potential compensatory processes within grouping systems.

The results of this study also have important implications for the two hypotheses invoked at the beginning of this paper. The sociological tradition has given strong emphasis to the differential peers hypothesis, in part due to the linkage of school effects and status attainment research. This tradition has emphasized the importance of having access to high ability peers and the effects these peers have on educational outcomes. The present findings once again demonstrate the influence of peers on student behavior, but the findings also specify the conditions under which access to high ability peers leads to friendship formation and the conditions under which the ability of friends affects achievement. Access to high ability peers is most likely to lead to friendship stratification along ability lines when spatial and temporal boundaries constrain interaction among students of different abilities. In particular, our findings suggest that tracking systems, which sort students by ability into class-rooms, present larger temporal and spatial constraints on friendship formation and thus have larger effects on friendship stratification than do the less constraining ability groupings that operate within classrooms. Nevertheless, in elementary settings, friendship stratification along

ability lines appears to have less powerful effects on achievement than
in high school settings. The reasons for such weak effects are not
immediately clear, but the absence of peer effects on achievement at
this level of the educational system may be due to more than differences
in the maturity or cognitive development of students of different ages.
It is possible that peer effects heighten as the tracking system becomes
institutionally chartered (Meyer, 1971) to produce students attending
college. To the extent that achievement becomes related to college
plans, and peers become sensitive to that fact, peer ability contexts
may begin to support higher achievement.

The findings reported here are also relevant to the differential
instruction hypothesis. Like other studies, the results demonstrated
a pattern of differential instruction across group levels. Perhaps the
most important finding was that pacing was affected by group assignment
and that pacing affected reading achievement. The more relevant finding
for our purposes, however, was that the effects of group assignment on
pacing differed depending on the type of grouping system being examined.
Whole class differences arising from ability grouping apparently worked
as predicted by Dahllof (1971) while within-classroom assignments had
compensatory effects on pacing. Thus, the findings, while demonstrating
a pattern of differential instruction, indicate that teachers do not
always plan and conduct instruction in grouping systems in a way that
necessarily reinforces intial achievement differentials.

Finally, the results suggest areas for future research on grouping.
A limit to this study has been its focus on but two of the many processes
that affect student achivement. Moreover, the findings indicate that
these processes "explain away" very little of the direct effects of

group assignment on achievement. In the future, investigators may wish to begin to study, not properties of student-teacher relationships, nor even properties of friendship contexts, but rather contextual features of the proximal learning environment. For example, Eder (1981) has demonstrated that lower level groups in a within-class ability grouping were characterized by more disruptions during reading instruction and were subjected to different patterns of control. Perhaps such contextual features of the proximal learning environment, rather than direct inter-actions with teachers or the less proximal environment of peer groups can account for the large, direct effects of group assignments on achieve-ment.

Thus, the present research, although failing to confirm much of the theoretical work on how grouping systems promote the self-fulfilling prophesy, demonstrates the importance of instructional grouping to student achievement, even at the elementary level, and opens the door for a broader approach to the study of ability grouping.

APPENDIX A: CORRELATION MATRIX, MEANS AND STANDARD DEVIATIONS OF VARIABLES

	INC	ETH	ITBS1	TRACK	RDGP	FRACH	COND	HAB	TSINT	PACE	ITBS2
INCOME		.41	.35	.36	.30	.25	.31	.18	-.18	.32	.38
ETHNIC			.40	.42	.37	.44	.24	.05	-.05	.25	.44
ITBS1				.70	.74	.52	.18	.30	-.16	.44	.77
TRACK					.53	.71	.21	.35	-.08	.50	.72
RDGROUP						.41	.23	.32	-.25	.25	.69
FRACH							.06	.32	-.06	.38	.56
CONDUCT								.39	-.13	.09	.21
HABITS									-.08	.23	.37
TSINT										.13	-.13
PACE											.48
ITBS2											
Mean	2.37	.48	45.55	.24	14.49	44.76	-4.8	-4.6	2.03	2.2	45.99
S.D.	.92	.50	25.97	.42	3.11	23.13	5.1	5.5	4.05	1.2	28.83

FIGURE ONE: MODEL TO BE ESTIMATED
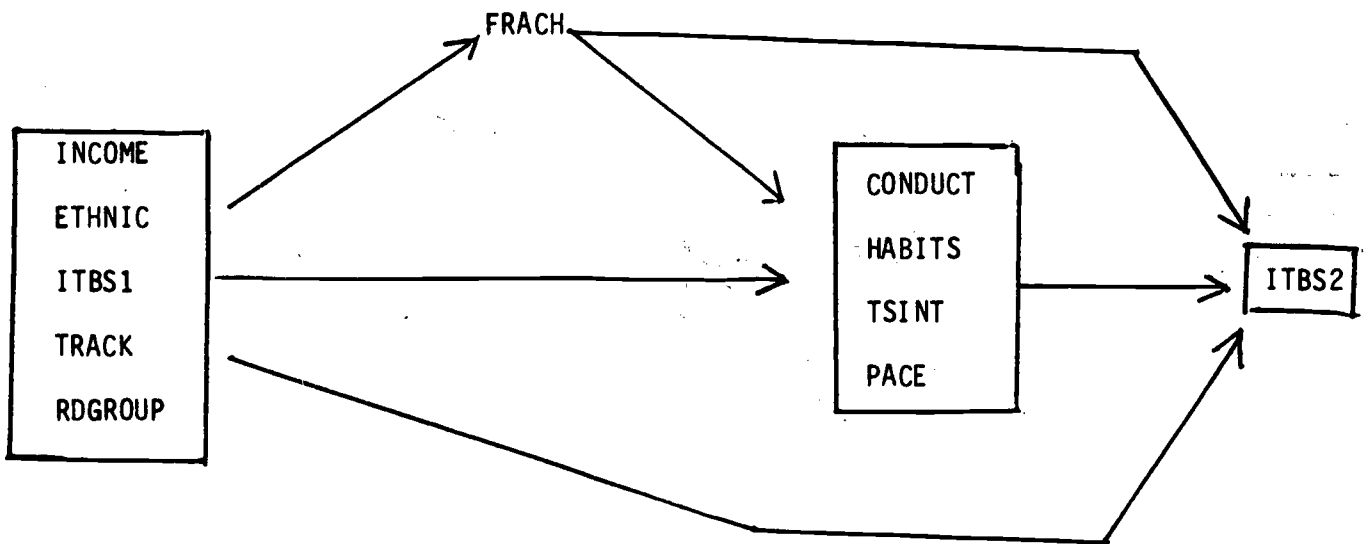
TABLE 1: OLS ESTIMATES OF THE MODEL

Dependent:		FRACH	CONDUCT	HABITS	TSINT	PACE	ITBS2
Independent							
ETHNIC	B	.19**	.15	- .23**	.08	- .01	.08.
	b	8.97	1.47	-2.54	.67	- .03	4.74
	s.e.	(3.07)	(.94)	(1.01)	(.78)	(.20)	(3.39)
INC		- .07	.22**	.11	- .15*	.16**	.03
		-1.87	1.19	.66	- .67	.20	1.04
		(1.61)	(.48)	(.52)	(.40)	(.10)	(1.74)
ITBS1		.02	.13	- .06	.03	.30**	.29**
		.02	.02	- .01	.004	.013	.34
		(.09)	(.03)	(.03)	(.022)	(.006)	(.09)
TRACK		.65**	.22*	.18	.08	.31**	.28**
		35.04	2.63	2.33	.78	.85	19.03
		(4.42)	(1.58)	(1.69)	(1.32)	(.34)	(5.61)
RDGROUP		.001	.19	.25**	- .29**	- .20*	.22**
		.006	.30	.44	- .38	- .076	2.01
		(.64)	(.19)	(.20)	(.16)	(.040)	(.68)
FRACH			- .23**	.20*	- .02	.05	- .000
			- .05	.05	- .004	.003	- .000
			(.025)	(.026)	(.021)	(.005)	(.08)
CONDUCT							- .03
							- .20
							(.31)
HABITS							.08
							.46
							(.29)
TSINT							- .007
							- .054
							(.355)
PACE							.11**
							2.74
							(1.39)
R^2		.54	.15	.20	.08	.55	.70

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