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ABSTRACT

This study addresses the effect that grade retention has on dropping out of school. A structural model was developed to test the effect of grade retention on dropping out while controlling for the effects of other possible mediating variables, especially achievement. This model with slight modifications was applied across four different school districts: Austin, Chicago, and two unnamed districts, one a high socioeconomic status suburban district in the Northeast, and the other a large urban district in the Southwest. Conclusions suggest that a causal connection between retention and dropping out exists; however, the model does not explain why retained students are more likely to drop out. Appended are 10 references and 5 figures. (SI)

Structural Equation Modeling of Retention and Overage Effects on Dropping Out of School[1]

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[1]Paper presented at the annual meeting of the American Educational Research Association, San Francisco, March 1989

Abstract

Studies of dropouts consistently find that repeating a grade is associated with dropping out of school. Since practical constraints prohibit using an experimental design, a structural model was developed to test the effect of grade retention on dropping out while controlling for the effects of other possible mediating variables, especially achievement. This model with slight modifications was applied across four different school districts, referred to as Samples 1 through 4.

In each district, grade retention had a sizable effect on dropping out. In Sample 1 retained students were more likely to drop out of school by an increase of 27 percentage points over students not retained. In Samples 2 and 3 retained students were more likely to drop out by and increase of 17 percentage points. In Sample 4, students in the 1979 freshman class and the 1981 freshman class had, respectively, 14 and 18 percentage point increases in the likelihood of dropping out over students not retained. The incremental increase from 14 to 18 percent represents the effect of a stricter eighth grade promotion policy intended to reduce the dropout rate by improving achievement.

The model does not explain how grade retention increases the likelihood that students will leave school. Dropping out is a complex process and grade retention contributes to this process in ways that still need to be clarified. It is

clear, however, that repeating a grade contributes to this process in a way that is distinct from the effects of poor achievement.

Introduction

Many educators believe that passing students on to the next grade before they have demonstrated some minimum level of competency is harmful. It is harmful because it is assumed that students, lagging behind their age-normal peers, are experiencing failure. If passed on, these 'slower' students will continue to fail academically unless they are given the opportunity to catch up. Catching students up has often meant retaining them in the same grade for another year of school. Despite a growing body of research showing that retention does not improve students' achievement (Abidin, Golladay, & Howerton 1971; Holmes & Matthews, 1984), it remains an acceptable educational practice. Retention remains acceptable because practitioners either aren't aware of or don't believe the research evidence. Typically teachers observe that retained students do better academically during the retained year. Teacher observations, however, are short term and lack comparison to poor achieving students who are promoted. Are there long term consequences of grade retention that teachers never see and that are quite different from their perceptions? This study addresses the effect that grade retention has on dropping out of school. Although an association between repeating a grade and dropping out is frequently noted in the research on dropouts, it is rarely mentioned by those who study the

effects of nonpromotion. Furthermore, the apparent association is often dismissed because poor achievement is thought to explain both retention and dropping out.

Practical constraints prohibit testing the effect of grade retention on dropping out using an experimental design. However, a few studies, in which achievement and retention have been examined concurrently, imply that certain variables, particularly grade retention, might be causal in their relationship to dropping out (Hess & Lauber, 1985; Lloyd, 1978; Rice, Toles, Schulz, Harvey, & Foster, 1987). Therefore, a structural model was developed representing the hypothesized relationship among available variables that lead to dropping out of school. This model, with slight modifications, was applied across four different school districts, Austin, Chicago, and two unnamed districts, one a high socio-economic district in the northeast, the other a large urban district in the southwest.

Sample 1: The Austin Independent School District

Austin is a large urban school district in Texas with an approximate student enrollment of 60,000. Data were supplied by the office of Research and Evaluation for 29,399 7th through 12th graders from the 1984-85 school year. Each student's completion status was updated through 1987. All students were classified as dropouts,

graduates, or currently enrolled, depending on their 1987 status. Graduates and currently enrolled students were combined for purposes of analysis.

Information was provided on students' sex, ethnic group, and eligibility for a subsidized lunch, used as an index for socio-economic status (SES). Achievement scores were available for the Iowa Test of Basic Skills (ITBS) and the Tests of Achievement and Proficiency (TAP). Within-grade percentiles scores were converted to normal curve equivalents (NCEs). NCEs were averaged across the years available for each student on each subtest. Then, confirmatory factor analysis was used to estimate an overall achievement score, separately for the ITBS and the TAP. Grade retention information was available for a seven year period, 1980-81 to 1986-87. Therefore retentions prior to 1980-81 had to be inferred from age. Normal age for grade was determined by historic entrance age policies.

The question arises as to whether or not overage is an accurate indicator of retention. Because Texas has one of the earliest entrance ages in the nation (i.e. five by September 1), it is not likely that students could be too old for their grade by moving to Texas from another state. However children could be too old without having repeated, if their parents held them out of school for an extra year. Based on kindergarten entrance practices elsewhere, it is most likely that parents would elect to hold their children out when their birthdays are within three months

of the cutoff (Shepard & Smith, 1985). Therefore, it was decided to define overage in two ways, one using the exact September cutoff and another in which students within the ambiguous three months before September were removed. The later will be referred to as tne exaggerated definition of overage. Analyses were conducted using the exact definition of overage, the exaggerated definition of overage, verified retentions, and verified plus exact overage. The most defensible definition is the one in which verified retentions are combined with the exact overage because it helps account for some of the inaccuracies of both. For example, it helps identify certain students who have been retained but who are not overage. (These are students who have moved to Texas from a district with a cutoff date later than September 1, who have birthdays after September 1, and who have been retained in Texas after 1980-81.) It does not correctly classify those who are overage but have not been retained. However, misidentifying overage students as retained should reduce rather than inflate apparent effects.

Results

Figure 1 shows verified retentions combined with the exact definition of overage and the ITBS as the measure achievement. In this figure the path coefficient from retention to dropping out is .34. However retention and dropping out are both dichotomous variables making the

path coefficient difficult to interpret. The unstandardized regression coefficient can help with interpretation since it can be read as a probability. The unstandardized coefficient (the figure 1 values in parentheses) is .27. This means that students who were retained were more likely to drop out of school by an increase of 27 percentage points over students not retained holding all of the other variables constant. When the TAP is used to measure achievement these values become .39 (.29). Again using the ITBS to measure achievement but changing the definition of retention to the exact definition of overage these values become .32 (.29). For the exaggerated definition of overage and for verified retentions these values become .34 (.35) and .34 (.29) respectively. The direct effect of achievement is -.07, meaning for every standard unit increase in achievement dropping out decreased .07 standard units. The total effect of achievement is -.22. Although the direct paths of the three exogenous variables (i.e. SES, sex, and ethnicity) show little effect, their direction indicates that students receiving a subsidized lunch are 3% more likely to drop out than students not receiving such a lunch, females are 2% more likely to drop out than males and Anglos are 3% more likely to drop out than minority students. Despite how retention or achievement are defined, retention always has a greater effect on dropping out than any of the other variables.

Sample 2: High socio-economic district

Sample 2 is from a large suburban school district in the northeast. This district was asked to participate because its high average socio-economic level permitted testing the effect of retention on dropping out in quite different circumstances. It has a total minority population of only 20% compared to 46% for Austin and 80% in each of the two other districts. It also has an official dropout rate of only 4% compared to 20-24% for Austin. It was hypothesized that retention might not have an effect on dropping out when support systems exist to minimize its negative impact. Parents in a high socio-economic district are more likely to be supportive and involved in their children's schooling and advocates believe that retention is more likely to be successful in such an environment.

Data were provided by the Research and Testing office for 38,364 7th through 12th graders in 1985-86. Grade retention and dropout data were updated for the next two years. Information was supplied on sex and ethnicity. Achievement was estimated by averaging standardized total battery scores on the California Achievement Test (CAT) for eighth and eleventh grades.

As with Austin, retention had to be inferred from overage. However, this district like many districts in the northeast has a late entrance cutoff of December 31.

Therefore, when overage is defined precisely at this boundary, there will be many students with September to December birthdays who appear to be too old but were never retained. A student who transferred here from Texas, with a September to December birthday, but making normal progress would appear as overage. Given the potential for misclassifying students who have moved here from another region of the country, the exaggerated definition of overage represents the more reasonable estimate. In this case, students with birth dates from September 1 through December 31 were removed from the analysis to create the exaggerated definition of overage. This definition of overage was combined with known retentions, for the three most recent years, to create the variable that defines grade retention.

Results

Figure 2 shows the path coefficient from retention to dropping out is .29. The unstandardized coefficient is .17. If only students in grades 10-12 are included, because only these students have had a chance to graduate (or be enrolled in their senior year), then the retention-dropout relation becomes .34 (.22). Despite the effects of a more advantaged family setting and community support to stay in school retained students are approximately 20% more likely to drop out of school than students not retained holding achievement and other variables constant.

Sample 3: Southwest Urban District

The data were provided by the Research and Evaluation office for a large urban district in the southwest. A tape was created from two sources of information. The first source of information was a random sample of 24,844 6th, 8th and 10th grade students in 1985-86. This sample of students was drawn from a sample of schools to provide information for an integration study. Cumulative records, containing information on sex, ethnicity, achievement scores on the Survey of Essential Skills (SES) and the Comprehensive Tests of Basic Skills (CTBS), and grade level information back to 1979-1980 were recorded and updated in 1986-87. The second source of information was the district reported dropouts in 1985-86 and 1986-87. Dropouts were identified in the integration study sample by name, date of birth, and sex.

It was decided to use only verified retentions in this study, even though the cumulative records for the 1985-86 10th graders were incomplete below 1979-1980. There was interest in testing the effect of grade retention when retention was not confounded by misclassified overage students.

Results

The analysis was conducted only for the 1985-86 10th

graders, a sample of 7,125 students. The other two classes were only in 9th and 7th grades in 1986-87, too young to have adequate numbers of dropouts. Figure 3 shows that when the CTBS was used to estimate achievement the path coefficient from grade retention to dropping out is .17. The unstandardized coefficient is also .17. When the SES was used to estimate achievement the path coefficient and the unstandardized regression coefficient from retention to dropping out are .19 and .21 respectively. As in sample 2 retained students are more likely to leave school early by an increase of approximately 20 percentage points over students not retained holding the other variables constant.

Sample 4: Chicago Public Schools

Chicago is a very large urban school system. Its population is 80% minority with longitudinal dropout rates of 40-45% The data provided by the Department of Research and Evaluation is the same data analyzed by Rice, Toles, Schulz, Harvey, and Foster (1987). These data were analyzed by Rice et al. to study the effect of a stricter 8th grade promotion policy initiated in 1980 and intended to improve graduation rates by improving achievement. However, in our study, Asians and students with missing achievement scores were omitted leaving a sample of 63,872

students. This sample represents three cohorts of students, the 1979, 1980, and 1981 freshmen classes.

Information on sex and ethnicity were provided along with reading scores on the ITBS administered in the 8th grade. (Reading scores were categorized as below grade level (< 7.1), at grade level (7.1-8.0), and above grade level (8.1+).) Retention was represented by Rice et al. as overage for grade. Chicago has a December 1 entrance cutoff date and therefore there should be some ambiguity in using overage as a proxy for retention. Because birth date information was not available it was not possible to experiment with a more stringent definition of overage.

Results

The best way to look at these data is to compare the effect of retention on dropping out for 1979 and 1981 freshmen. See figures 4 and 5. The 1979 class was the last to be unaffected by the stricter enforcement of 8th grade promotion standards. The 1981 class includes the first group of students made to repeat 8th grade for another year. For the 1979 class the effect of retention on dropping out is .13 (.14). The effect for the 1981 class is .18 (.18). Rather than reducing the rate of dropping out, the stricter promotion policy increased retained students chances of dropping out by 4 percentage points.

Conclusions and Discussion

While acknowledging that structural models can never prove causal relationships our analyses suggest that, after adjusting for achievement and various other background variables, there may indeed be a causal connection from retention to dropping out. However the model does not explain why retained students are more likely to drop out. Grade retention undoubtedly contributes in subtle and interactive ways to an already complex set of causes for school leaving. For example, repeating a grade might contribute to some negative set of school experiences that work to convince students that they can't succeed. Repeating a grade might contribute to a sense of alienation by making students feel too old for their classmates or feel too old to still be in high school. Being older might also make students less willing to wait to take on adult roles such as getting a job or getting married. Or more likely it is a combination of these or other processes since they are not mutually exclusive. In any case, the negative consequences of making students repeat a year of school are clear.

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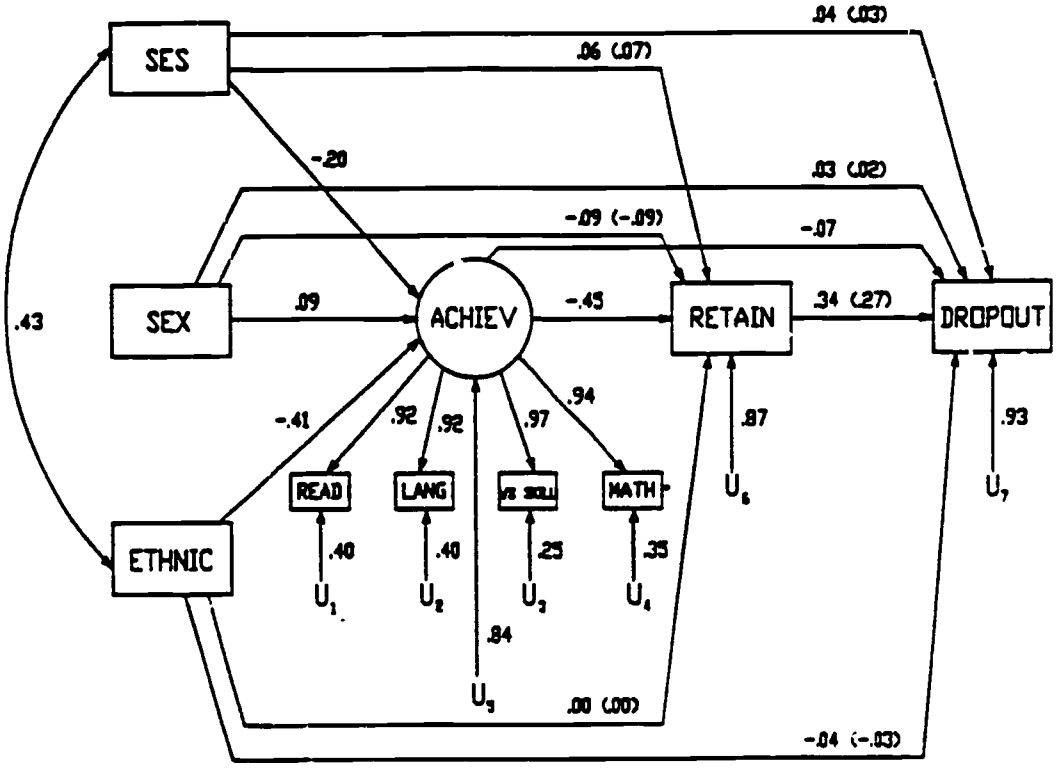

Figure 1 Path diagram of Subgroup 1 (ITBS) in Sample 1 (Austin). Retention was estimated by adding students who had verified grade repetitions to those who were overage as defined by the exact cutoff.

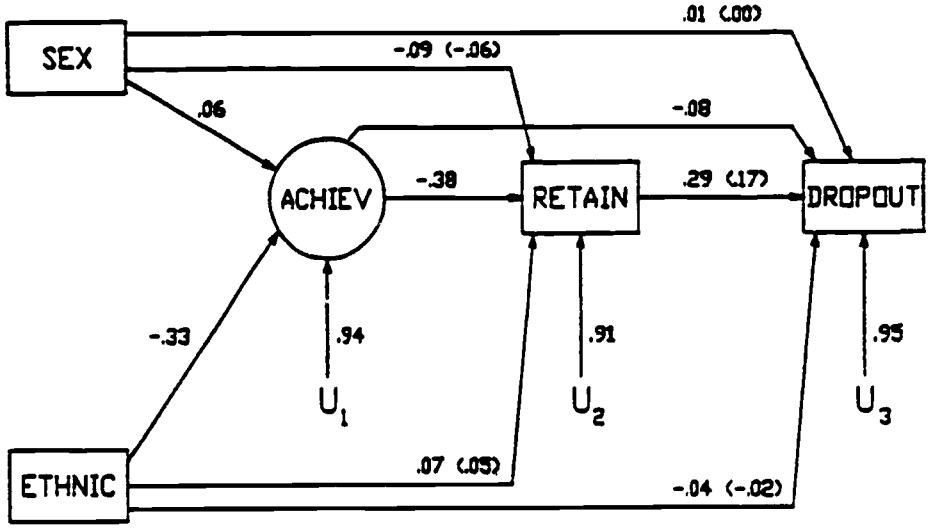

Figure 2 Path diagram of Sample 2 (high SES district). Retention was estimated by adding students who had verified grade repetitions to those who were overage as defined by the exaggerated cutoff.

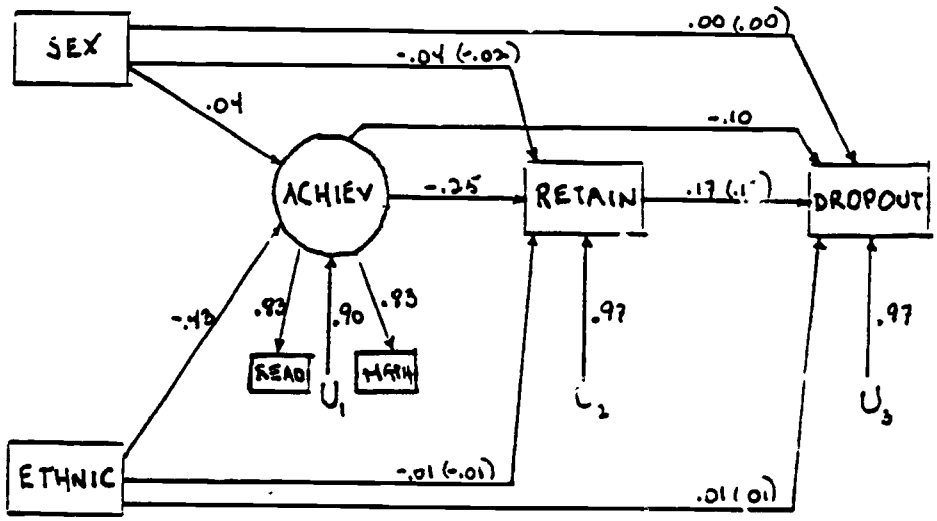

Figure 3 Path diagram for Sample 3

CTBS used to measure achievement

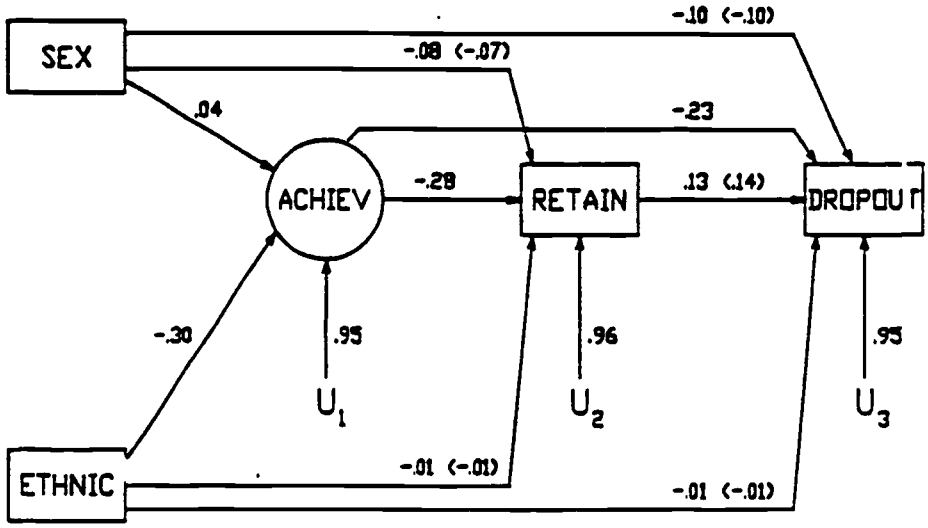

Figure 4 Path diagram of Cohort 1 (1979 freshmen) in Sample 4 (Chicago).

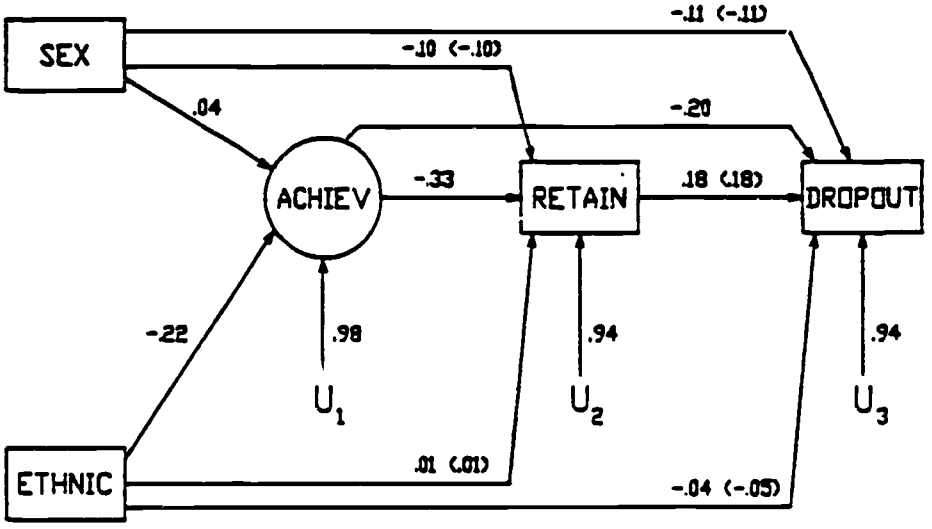

Figure 5 Path diagram of Cohort 3 (1981 freshmen) in Sample 4 (Chicago).