

The Relationship of School-To-School Transitions and School Size to High School Dropout Rates

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Abstract

The study was concerned with the effects of school-to-school transitions and K- 12 enrollment per attendance center on high school dropout rates. As the number of school-to-school transitions within a school district increases there is an associated increase in the high school dropout rate. The largest high school dropout rates tend to occur in districts with the last transition to high school at tenth grade. Enrollment per attendance center was found to be related to the number of transitions and the grade level of the last transition. Districts with larger enrollments per attendance center tend to have higher dropout rates. The lowest high school dropout rates were found in K-6, 7-12 school districts with only one school-to-school transition and small enrollments per attendance center.

Introduction

A large portion of the research on high school dropouts has been concerned with identification of variables associated with at-risk students. This research has generally concluded that socioeconomic status (SES) is a primary contributing factor in high school dropout rates (Rumberger, 1987). Researchers have identified clusters of factors associated with a student's decision to dropout of school such as family background, personal problems and school related problems (Phelan, 1992). Wehlege (1986) emphasized a need to study school-related variables associated with student dropouts in addition to the characteristics of student dropouts.

A second group of studies have been concerned with dropout prevention strategies. Many of these strategies emphasize the development of a caring relationship between students and teachers (Phelan 1992; Reglin 1990). Increasing the level of student participation in school activities has been found to be an effective dropout prevention strategy. Bell (1967) and McNeal (1995) found that participation in highly visible extracurricular activities such as athletics tends to reduce the likelihood that a student will dropout. Large schools tend to have low rates of student activity participation (Huling, 1980; Kleinert 1969). Several researchers have found a tendency for

attendance rates to decrease and dropout rates to increase with an increase in school size (Lindsay, 1982; Merritt, 1983; Pittman & Haughwout, 1987).

Wood, et al. (1993) found that changing schools increased the probability that a student would dropout of school. In a study of middle school dropouts, Rumberger (1995) found that policies affecting student transfers will influence a student's decision to stay in school. The transition of students from elementary school to middle school can be compared to a student transfer requiring the adjustment of all students to a new learning environment.

In a previous research project comparing the achievement levels of small rural K-6, 7-12 school districts versus K-8 school districts, the author observed a sharp decline in achievement levels during the transition from elementary to secondary school at seventh grade in the K-6, 7-12 school districts. In a study designed to investigate achievement losses associated with school-to-school transitions Alspaugh and Harting (1995) found a consistent achievement loss in reading, mathematics, science, and social studies for students in transition during grades five, six, seven, and eight. If there is a loss in student achievement associated with school-to-school transitions then is there an increase in high school dropout rates associated with the number and grade levels of these transitions?

Purpose of the Study

The overall goal of the study was to explore the relationship of three district organization variables and high school dropout rates while considering the effects of SES. The district organization variables were (1) number of school-to-school transitions, (2) the grade level of the last transition to high school, and (3) the K-12 enrollment per attendance center. Because SES and school size variables have been identified by other researchers as being related to high school dropout rates the first part of the study was concerned with the two school-to-school transitions variables. The second part of the study was devoted to exploring the relationship among the transition variables, school size and SES, and the combined

influence of these variables on high school dropout rates.

Sources of Data for the Research

The sample for the study included 447 Missouri school districts with high schools. The dependent variable was the five year average dropout rate for each school district for the school years 1990-91 through 1994-95. The annual dropout rate was defined as the number of pupils leaving grades 9 through 12 without a transcript request divided by the September enrollment count for grades 9-12 and expressed as a percent. Four independent variables were included within the study. The two school-to-school transition variables were the number of transitions in the grade level organization of each district and the grade level of the last transition to high school. Two additional variables that have been previously identified as being related to high school dropout rates were used in the data analysis. The percent of students receiving free or reduced lunch in each district was used as an SES indicator for the students within the school district. The second additional variable was the average enrollment per attendance center in each of the sample school districts. The enrollment per attendance center was calculated by dividing the total K-12 enrollment within each district by the number of attendance centers within the district.

Data Analysis

Because school-to-school transitions do not appear as variables in the reports of related research on high school dropout rates the first part of the data analysis concentrated upon the transitions. The second part of the analysis considered the transitions in combination with SES and school size.

School-To-School Transitions. Descriptive statistics for the schools grouped by the number of school-to-school transitions are presented in **Table 1**. The 256 districts without intermediate level schools such as middle or junior high schools had only one school-to-school transition. The 148 districts with two transitions each had one intermediate grade level school in their grade level organizations.

Number of Transitions	N Districts	% F/R Lunch	Enr./ Att. Ctr.	% Dropout
1	256	39.41	232.80	3.75
2	148	31.52	458.86	5.31
3	38	29.58	450.29	6.16
4	4	25.94	602.11	6.75
5	1	34.13	618.17	9.80
Total	447	35.83	330.30	4.51

Table 1. Sample Sizes and Means for the School Districts by the Number of Transitions

The percent of students receiving free or reduced lunch indicates the SES level of the students within the districts. The districts with one transition tend to be the smaller rural districts with K-6, 7-12 or K-8, 9-12 grade level organizations. The dropout percentages are lowest for the districts with one transition even though they are the lowest SES districts. Disregarding the SES and school size differences among the school groups, a one-way ANOVA with the number of transitions as the independent variable and the five year average annual dropout rate as the dependent variable yields a test value $F = 20.208$ with $df = 4, 446$ and $p < .01$.

Figure 1 illustrates the relationship between the number of grade level transitions and the five year average high school dropout rates. As the number of school-to-school transitions increase there is a substantial increase in dropout rates.

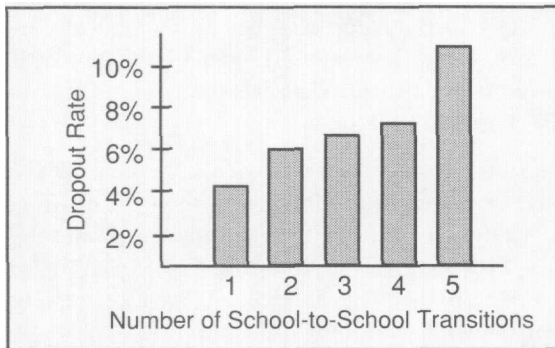


Figure 1. Relationship between the number of transitions and high school dropout rates.

Descriptive statistics for the districts grouped by the grade level of the last transition are presented in **Table 2**. The largest group of schools consists of the 212 districts with their last transition at seventh grade. As the grade level of the last transition increases there is a decrease in the percentage of students receiving free or reduced lunch. The low SES schools tend to have smaller enrollments per attendance center and have their last school-to-school transition at a lower grade level than the high SES schools. A one-way ANOVA not considering the different sizes and SES levels of the schools yields a test value $F = 17.006$ with $df = 4, 442$ and $p < .01$.

Figure 2 illustrates the relationship among the mean average annual dropout rates for the schools grouped by the grade level of the last transition. The age of the students during the last transition may be a confounding factor in

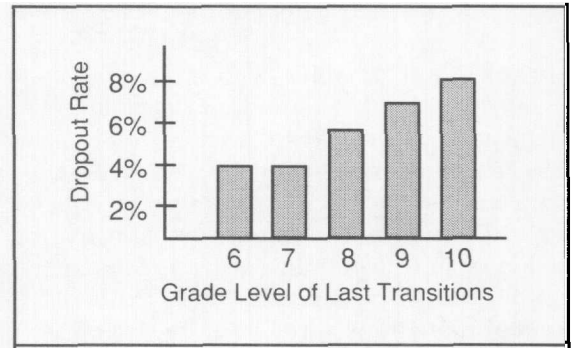


Figure 2. Relationship between the grade level of the last transition and dropout rates.

Relationship of Transitions and School Size to Dropout Rates

Grade Last Transitions	N Districts	% F/R Lunch	Enr./ Att. Ctr.	% Dropout
6	11	41.68	171.61	3.70
7	212	39.36	232.83	3.71
8	10	37.82	251.33	4.01
9	198	32.51	430.99	5.25
10	16	24.76	534.28	6.82
Total	447	35.83	330.30	4.51

Table 2. Sample Sizes and Means for the School Districts by the Grade Level of Last Transition

the increased dropout rate as the grade level increases. The highest dropout rates occur when the when the last transition is at tenth grade and most of the students are about sixteen years old.

The relationship between the number and grade placement of the last school-to-school transition within the sample schools is illustrated by the frequency counts in **Table 3**. The 201 schools districts with a K-6, 7-12 grade level organization form the largest groups of schools with only one transition at seventh grade. There were 148 districts with two transitions because they have some type of intermediate level schools. The traditional K-8, 9-12 school districts are represented by the 35 school districts with one transition at ninth grade. A total of sixteen school districts had their last transition at grade ten thus forming three grade high schools with a grade span of

ten through twelve. From the pattern of frequency counts in **Table 3** it is apparent that the grade level of the last transition increases as the number of transitions increase. The correlation between the number of transitions and the grade level of the last transition of $+0.730$ is presented in **Table 4**.

The first line of the correlation matrix in **Table 4** shows the correlations between the percent of students who drop out and the other school measures. All of the correlations in **Table 4** are statistically different from zero at the $.01$ level except for the correlation between dropout rates and percent of students receiving free or reduced lunch which is significant at the $.05$ level. The largest correlations in the correlation matrix are those among the district organization measures, the school transitions and enrollment per attendance center.

Number of Transitions	Grade Level of Last Transition					Total
	6	7	8	9	10	
1	11	201	9	35	0	256
2	0	11	1	131	5	148
3	0	0	0	28	10	38
4	0	0	0	4	0	4
5	0	0	0	0	1	1
Total	11	212	10	198	16	447

Table 3. The Relationship Between Number of Transitions and Grade Level of Last Transition

	% Dropout	Number of Transitions	Grade Last Transitions	Enr./ Att. Ctr.	% F/R Lunch
% Dropout	1.000	.378**	.355**	.410**	.117*
Number of Transitions		1.000	.730**	.534**	-.286**
Grade Last Transitions			1.000	.545**	-.287**
Enr./ Att. Ctr.				1.000	-.156**
% F/R Lunch					1.000
* P < .05 **P < .01					
Table 4. Correlation Matrix for Measures from 447 School Districts					

The SES level of the students within a school district is beyond district control, but the organizational variables may be controlled by the districts. Attendance center size and grade level organization of the attendance centers within a school district are restricted by the buildings and school facilities but can be changed over time. With this in mind a hierarchical multiple regression approach (Tabachnick & Fidell, 1989) was used to

evaluate the influence of the organizational variables upon dropout rates after accepting the SES levels of the school districts. The hierarchical regression in **Table 5** was broken into three steps. The first step included the percent of students receiving free or reduced lunch as the SES indicator and then considered the three organizational variables one at a time as to the best potential second variable to include in the regression. The largest coefficient

Step and Variables	Multiple R	Coefficient of Determination
Step1		
% F/R Lunch		
Enr./Att. Ctr.	.5104	.2605
Number of Transitions	.4544	.2065
Grade Last Transition	.4224	.1784
Step2		
% F/R Lunch & Enr./Att. Ctr.		
Number of Transitions	.5569	.3132
Grade Last Transition	.5433	.2952
Step3		
All Variables	.5625	.3164
Table 5. Hierarchical Multiple Regression Starting with the SES Indicator and Introducing the School District Organization Variables One at a Time		

of determination of .2605 occurs with the inclusion of enrollment per attendance center as the first organizational variable to consider with the SES indicator. The second step included the SES indicator and attendance center size as the first two independent variables and then considered the two transition variables as the potential third variable. With the inclusion of the number of transitions the coefficient of determination increases to .3132. The inclusion of the grade level of the last transition gives a modest increase of the coefficient of determination to .3164. The high intercorrelations among the three organizational variables in **Table 4** tend to limit the gain in variance associated with high school dropout rates that can be achieved in by including another of the organizational variables.

The hierarchical regression places the district organization variables in an order for consideration for districts that are considering attendance center reorganization. The three correlations, .378, .355, and .410 in **Table 4** indicate the relationship each organization variable has individually with high school dropout rates. The decreasing magnitude of these correlations is consistent with the order of introduction of the organizational variables in the hierarchical regression. This will not always be the case in hierarchical regression because the intercorrelations among the independent variables may alter the order of variable introduction.

The multiple correlation for the two transition measures and high school dropout rates is .402. The correlation between enrollments per attendance center and dropout rates from Table 4 is .410. Thus the two transition measures together will account for almost as much variance in dropout rates as enrollment per attendance center.

Summary

The findings of this study suggest that an increase in the number of school-to-school transitions within a school district is associated with an increase in the high school dropout rate. This is consistent with the previous

findings that school-to-school transitions are associated with a loss in student achievement (Alspaugh & Harting, 1995). School-to-school transitions require students to adjust to a new learning environment somewhat like students experience in transferring from one school to another. Rumberger (1995) and Wood, et al. (1993) found that school transfers are associated with lower educational outcomes.

This study supports the finding of previous researchers that school size is a significant factor in high school dropout rates (Bryk, & Thum, 1989; Merritt, 1983; Pittman & Haughwout, 1987; Wehlage, 1986). This study also confirms the generally held opinion that SES is a primary variable associated with school dropout rates. However, Alspaugh (1992) found that SES indicators are not closely correlated with educational outcomes in small rural schools. School size has a differential effect upon the relationship between SES indicators and school outcomes such as achievement levels and dropout rates. As school size increases the negative correlation between the percent of students on free or reduced lunch and educational outcomes increases in magnitude. This illustrates some of the complex underlying relationships associated with the variables involved in studies of dropout rates.

As enrollment per attendance center increases there is a tendency for school districts to create more intermediate level schools thus increasing the number of school-to-school transitions. It appears that school size and school-to-school transitions may be working jointly to increase high school dropout rates. The findings of the study imply that school districts may want to reconsider having students experience the school-to-school transitions that are associated with intermediate levels schools between elementary school and high school. The last transition at tenth grade when most of the students are sixteen years old appears to be particularly associated with high dropout rates. The findings of this study support the conclusions of Bryk and Thum (1989) that school district organization may be associated with educational outcomes.

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