Relationship Between Mobility and Student Performance and Behavior

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ABSTRACT The authors investigated the relationship between student mobility and student performance and behavior. The authors used criterion-referenced test (CRT) and norm-referenced test (NRT) data indexes from the 1998–1999 school year. Results showed that as the mobility of students increased within the school year, their test performance on the CRT and the NRT decreased. Also, suspension rates were high for students who had changed schools within a school year. As a practical solution, students who experience single or multiple transfers within a school year should receive particular attention because they are likely to have discipline and performance problems. Also, the K–12 grade structure appears to be much more appropriate for students than is the traditional K–5, 6–8, and 9–12 structure.

Key words: student mobility, successful performance and behavior, suspension rate

Public education in Louisiana is a growing concern. Student performance is near the bottom compared with other states on almost all measures of success, such as test scores, dropout rates, college remediation rates, and employability. Although widespread agreement exists that education in Louisiana must be improved, and the state is attempting to attain higher academic standards by using a new student and school accountability system, many children are being left behind.

Critics claim that poverty and problems associated with poverty are the most significant barriers to academic success and that some schools do not have the resources to deal with the growing number of poor children and the associated risk factors. Conversely, although the link between poverty and low student performance in the general population is clear (McCarthy, 1995), some schools are successful despite their being located in low-income areas, and some poor children are successful within a school that is not performing well. Therefore, poverty alone does not cause school failure or individual failure. Generally, environmental characteristics of poor children, such as (a) lack of parent involvement (Gaitan, 1988; Gibson, 1982), (b) inadequate housing (Loic & Wilson, 1989), (c) health problems (Loic & Wilson, 1989), (d) lack of educational stimulation in the early years (Eddowes, 1992), (e) unsupportive school climate (Hallinan, 1996), and (f) high student mobility (Bruno & Isken, 1996) are factors that lead to low academic performance. In this study, we investigate the effects of student mobility on student performance.

As reported by the U.S. Bureau of the Census (1997), between March 1996 and March 1997, over 43 million Americans, roughly 16.5% of the population, changed residences. Also, 27.74 million of those people (10.5%) moved within the same county; 14.34 million people (5.5%) moved to a different county. Because of the high mobility rate within the overall population, public schools are subject to highly mobile subpopulations. Educators have long suspected that student mobility has a negative impact on student achievement and adjustment. Student mobility has had an increasing impact on the performance of students and school systems, especially public schools, in recent decades and might be a source of serious educational policy concerns.

According to the annual report of the U.S. Department of Education (1995), 3% of the eighth graders in U.S. schools changed institutions two or more times after entering first grade and before the middle of eighth grade; 10% of these students changed schools two or more times between the middle of eighth grade and spring 1992. Furthermore, 29% of the White students and 36% of the Black students moved two or more times after entering first grade and before the middle of eighth grade. Between the middle of eighth grade and spring 1992, 8% of the White students and 16% of the Black students changed schools. Of the students who changed schools two or more times between first grade and the middle of eighth grade, 23% lived with two parents during the eighth grade, and 65% of the students lived with a single parent during that time. Thirty-nine percent of students in low-income (under $10,000) families

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changed schools two or more times after entering first grade and before the middle of eighth grade. Thirty-one percent of students who changed schools two or more times had an annual family income that equaled or exceeded $20,000.

Students change schools for academic, personal, and family-related reasons. Those students who make frequent school changes can experience disruption in their home life as well as in school because of a lack of continuity of lesson content, disruptions in social ties, and feelings of alienation. Unfortunately, those children often do not receive help to adjust to the disruption of a new school—new children, teachers, and principals—and to make sense of the variations in curriculum between the former and current schools. Therefore, the success of children who change schools frequently is being jeopardized. In addition, as schools focus their attention on high academic standards advocated by national and state leaders, the highly mobile children might face increased difficulty in achieving success (Schwartz, Scott, & Birman, 1994). Teachers also may have difficulty identifying and meeting the academic and social needs of those students. In addition, student mobility is a concern of parents who move frequently for a variety of reasons. Although they may be trying to improve conditions for their children, parents who move frequently may harm the educational development of their children (Biernat & Jax, 1990).

Relevant Literature

Numerous studies have documented differences in the achievement levels of mobile students (those who changed schools) and nonmobile students (those who did not change schools) from year to year and within the same school year. Study results indicate that students who change schools frequently are lower achievers than are nonmobile students. Mehana and Reynolds (1995) found that frequent mobility negatively affects sixth-grade students' reading achievement after controlling for kindergarten achievement. The U.S. General Accounting Office (GAO, 1995) reported that 41% of highly mobile students in the United States were low achievers, whereas 26% of students who never changed schools were low achievers. Wood (1993) found that 23% of the children who moved frequently had repeated a grade. In addition, children who move often also are more likely to have behavioral problems, which, in turn, could lead to missed classes and academic difficulties (Wood).

Audette, Algozzine, and Warden (1993) conducted a study on mobility and student achievement in 72 elementary schools in the southeast United States, where third-grade students were evaluated by their achievement scores on the California Achievement Test (CAT). The researchers calculated mobility by the ratio of students entering and leaving school to the total number of students enrolled during the year. The 11 schools that had the highest mobility rates also had the lowest scores on the CAT.

The studies mentioned in the preceding paragraphs were two of those in which researchers investigated two kinds of mobility: (a) mobile and nonmobile students from 1 school year to another school year and (b) multiple-time mobile students (two or more moves) within the same school year. Wood (1993) and Audette et al. (1993) showed a relationship between student mobility and student performance in both types of mobility.

Ingersoll, Scamman, and Eckerling (1989) found a uniformly negative relationship between geographic mobility and student achievement that was even worse for earlier grade levels. Those authors reported that the size of the mobile population decreased as students grew older.

Other factors also related to student mobility include poverty, innercity residences, migrant families, or limited English proficiency. A report to the House of Representatives by the GAO (1995) reviewed available information pertaining to mobility and its effects on student achievement. The report states that highly mobile students are more likely to be low-income, innercity, migrant, or limited-English-proficient children. Highly mobile students also are more likely to be low achievers and to repeat a grade. Mao, Whitset, and Mellor (1997) investigated the relationship between mobility, student achievement, and district-wide academic performance in Texas public schools. The authors indicated that economically disadvantaged children have high mobility rates and low performance. Pre-kindergarten through third-grade students were more likely to change schools than were students in upper elementary grades; and 17% of Pre-K–3 students changed schools at least once during the 1994–1995 school year. The authors also determined that the mobile students scored lower than did nonmobile students on mathematics and reading tests; scores ranged from 11% to 21%, respectively. Mao and colleagues suggested that districts should work together to keep children in the same school during an academic year.

Benson, Haycraft, Steyaert, and Weigel (1979) investigated the relationship between mobility and academic performance, classroom adjustment, and socioeconomic status. Only 20% of the participating sixth graders had been in the same school since kindergarten, and students who had a high rate of mobility had low achievement scores on the reading subtest of the Standard Achievement Test.

Kerbow (1996) studied student mobility among Chicago elementary students and found that most schools did not have stable cohorts of students that could be tracked over time. He found that reform efforts designed to improve student achievement often assumed continuity of attendance but that schools as well as individual students may have lost resulting gains because of student mobility. Williams (1996) observed high rates of mobility among Chicago elementary schools, suggesting a common curriculum to minimize the impact on individual students.

Wright (1999) observed that mobility appears to be an important factor for evaluating effects of school programs and for accounting for school improvement efforts. The

Kansas Title I evaluating system, for example, acknowledges the disruptive influence of mobility by excluding from state assessment results the spring semester reading and mathematics scores of students who move into schools after the beginning of a school year. Wright concluded that the policy reflects the assumptions that (a) mobility affects subsequent achievement, (b) population stability is the norm, and (c) mobility is unrelated to risk factors of direct relevance to the program.

Many researchers have considered mobility as merely one of numerous factors that influence achievement rather than one of preeminent importance (Wright, 1999). Parades (1993) examined the effect of student mobility, race, income, and grade level on achievement in the Austin, Texas, schools. Students who moved often scored lower on tests than did their peers, although mobility was only one influence among other significant factors, such as race, income, and grade level. Adduci (1990) found that mobility added little to predict achievement beyond the other factors. Nelson, Simoni, and Adelman (1996) suggested that poor school functioning and mobility may be related to additional influences such as at-risk family traits.

I hypothesized how student performance on state norm-referenced tests (Iowa Test of Basic Skills; ITBS) and student suspension rate are related to student mobility in the Louisiana public schools. There are three basic research questions in the present study:

1. Is the performance of nonmobile students significantly different from that of mobile students?
2. Is the performance of nonmobile students significantly different from that of obligatory and optional mobile students?
3. Is the suspension rate of nonmobile students significantly different from that of mobile students?

To our knowledge, no single study reports the relationship between mobility, student performance, and suspension rates in a Louisiana setting. In addition, Franklin and Glascock (1998) called for further research to investigate the relationship between nonunit grade structures (K–12, unit grade structure; K–12, nonunit grade structure) and mobility. We also attempt to address that need.

Method

Participants

The participants were public school students in Louisiana. We used 1997–1998 school year data for public school students in Grades K–12 for mobility percentages from year to year and within-school year. However, I eliminated kindergarten students from year-to-year mobility percentages because test data were not available. I used the scores of all Louisiana students who took the ITBS tests in the 1998–1999 school year to investigate the relationship between mobility and student test performance. I also used the ITBS scores of all Louisiana students who were suspended during the 1997–1998 school year to determine the relationship between mobility and suspension rates.

I used the ITBS, which is based on student performance on all subtests, as the achievement measure. The Louisiana's norm-referenced testing program consists of the ITBS; tests are administered in Grades 3, 5, 6, 7, and 9 to compare the performance of Louisiana students with the performance of students at the national level. I examined the ITBS test scores of all Louisiana public school students in Grades 3, 5, 6, and 7 who completed tests in terms of mobile and nonmobile students. The test-reliability coefficient based on Kuder-Richardson Formula 20 procedures for ITBS was between .60 and .95 for 1995 data (ITBS, 1998). Validity coefficients ranged from .73 in mathematics to .83 in vocabulary; composite correlations were .89 for 1995 data (ITBS).

I examined the ITBS scores of all Louisiana public school students who were suspended in the 1997–1998 school year, in terms of their mobile and nonmobile status. Suspension rates provide insight into the level of student discipline and misbehavior that occurs in schools. I calculated the suspension rate for mobile students by the number of students suspended, divided by the total number of mobile students. In addition, I calculated suspension rates for nonmobile students by the number of students suspended, divided by the total number of nonmobile students.

Student mobility occurs in two instances: (a) *within the school year*, when a student enrolls more than one time during a school year (no moves, used for comparison group; one move; two moves; three or more moves) and (b) *year to year*, when a student changes school at the end of the year. Year-to-year mobility occurs in two instances: (a) *obligatory*, when the current school does not offer the next grade and the student must move to another school and (b) *optional*, when the next grade is offered at the current school but the student chooses to attend a different school for the next year. I compared the ITBS scores of students who had experienced no moves with students who had made one, two, and three or more moves. I also compared the test performance of students whose moves were obligatory or optional with students who had experienced no moves.

Analysis

I collected data through the Louisiana Public School Student Information System (SIS) and used the ITBS from the 1998–1999 school year for comparison. I used 1997–1998 school-year data for student suspension rates and analyzed the data with the means, percentages, and standard deviations of mobile and nonmobile students. For comparisons of mobility groups of none, one, two, or three or more moves; or obligatory, optional, and nonmobile, I employed one-way analyses of variance (ANOVAs). I also used analyses of covariance (ANCOVA) to control ethnicity and grade-level differences. I used the same levels of analysis—none,

one, two, or three or more moves; obligatory, optional, and nonmobile in ANCOVA.

Results

Within-School-Year Mobility

Table 1 shows that 728,466 Louisiana public school students in Grades K–12 (93%) were stable within the school year. However, more than 50,000 students in all grades (over 7%) moved at least once within the 1998–1999 school year. Of those students, 55 students enrolled in schools five or more times during the school year. Mobility rates for one move of students in Grades 10, 11, and 12 were 4.43%, 3.55%, and 2.18%, respectively. However, the mobility rates for one move were high in Grades K, 1, and 2 (7.43%, 7.77%, and 7.09%, respectively). The fact that 7% of the population was affected by mobility was significant.

Test performance. Table 2 reports the means and standard deviations of the ITBS for mobile and nonmobile students (none, one, and two, three, or more moves) and shows the relationship between student mobility and performance for all Louisiana public school students. The ITBS was greater for nonmobile students (74.54; effect size, 0.44) than for students who enrolled in schools two or more times within the school year (46.64; effect size, 0.09, see Table 2). Also, the ITBS for students with one move (52.97; effect size,

TABLE 1. 1997–1998 Statewide Student Mobility Within School Year, by Grade

	Number of school moves						
Grade	0	1	2	3	4	≥ 5	Total
K							
n	58,131	4,753	845	162	35	12	63,938
%	90.92	7.43	1.32	0.25	0.05	0.02	
1							
n	60,253	5,177	924	197	47	8	66,606
%	90.46	7.77	1.39	0.30	0.07	0.01	
2							
n	56,850	4,414	808	177	26	9	62,284
%	91.28	7.09	1.30	0.28	0.04	0.01	
3							
n	55,511	4,128	749	124	33	4	60,549
%	91.68	6.82	1.24	0.20	0.05	0.01	
4							
n	55,373	3,899	653	142	23	3	60,093
%	92.15	6.49	1.09	0.24	0.04	0.00	
5							
n	55,792	3,716	629	122	25	6	60,290
%	92.54	6.16	1.04	0.20	0.04	0.01	
6							
n	58,617	4,040	651	115	18	3	63,444
%	92.39	6.37	1.03	0.18	0.03	0.00	
7							
n	59,893	4,205	682	117	22	4	64,923
%	92.25	6.48	1.05	0.18	0.03	0.01	
8							
n	56,171	3,522	628	105	28	5	60,459
%	92.91	5.83	1.04	0.17	0.05	0.01	
9							
n	66,166	4,603	714	102	14	0	71,599
%	92.41	6.43	1.00	0.14	0.02	0.00	
10							
n	55,582	2,595	359	39	7	0	58,582
%	94.88	4.43	0.61	0.07	0.01	0.00	
11							
n	46,138	1,706	214	25	2	0	48,085
%	95.95	3.55	0.45	0.05	0.00	0.00	
12							
n	43,989	984	124	6	0	1	45,104
%	97.53	2.18	0.27	0.01	0.00	0.00	
All grades							
n	728,466	47,742	7,980	1,433	280	55	785,956
%	92.69	6.07	1.02	0.18	0.04	0.01	

TABLE 2. The Iowa Test of Basic Skills (ITBS), by Mobile and Nonmobile Students

Number of school moves	Total students	Students (%)	ITBS Index	*SD*	Effect size
0	216,486	64.42	74.54	63.88	0.44
1	10,754	4.69	52.97	54.18	0.10
≥ 2	2,038	0.88	46.64	47.65	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

TABLE 3. Analysis of Variance: Difference in the Iowa Test of Basic Skills for Three Levels of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Between-school years	6,239,333.92	2	3,119,666.96	777.72	0.000
Within-school year	919,693,789.91	229,275	4,011.31		
Total	925,933,123.83	229,277			

TABLE 4. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Group	ITBS Index	Nonmove (*pr*)	1 move (*pr*)	2 or more moves (*pr*)
Nonmove	74.54		0.000	0.000
1 move	52.94	0.000		0.000
≥ 2 moves	46.64	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

0.10) was better than for students with two, three, or more moves (46.64; effect size, 0.09). Data showed a correlation between mobility and student performance; as mobility increased, the Iowa index decreased. For all Louisiana public school students, those who experienced mobility performed poorly when compared with their nonmobile peers.

The results of ANOVA and multiple comparisons in Tables 3 and 4 provide an indication that mobility has a demonstrable relationship with student performance on the ITBS. As the number of moves increased, the performance of students on the achievement test decreased. The ITBS scores for students who did not move were significantly greater than for students who moved once; ITBS scores for students who moved once were significantly greater than for those who moved twice.

Even though data show that mobility effect is statistically significant, it is worthwhile to examine other potential predictors of achievement. We also examined student ethnicity and grade level (see Table 5 for summary statistics). Table 5 shows a similar pattern for both ethnicity and grade levels. In each ethnicity group and grade level, the mobile students' performance on the ITBS was lower than was the nonmobile students' performance. The maximum effect size (0.64) belonged to White nonmobile students. Also, the performance of students who moved two or three or more times was lower than that of students who moved only one time.

Table 6 reports the ANCOVA based on differences on the ITBS for three levels of mobility, with ethnicity as the covariate; Table 7 shows the summary of Tukey-Kramer multiple comparison of the IBS for three levels of mobility after controlling for ethnicity.

Tables 6 and 7 show that the difference in the ITBS for three levels of mobility, after controlling for ethnicity, were still significant. In each case, nonmobile students' performance was significantly different from that of mobile students. ANCOVA showed that students who experienced mobility performed poorly compared with their nonmobile peers. In each case, the performance of students who experienced one move performed better than did students who experienced two or three or more moves.

TABLE 5. The Iowa Test of Basic Skills (ITBS) for Student Mobility, by Ethnicity and Grade

Student mobility	Number of moves	Total students	ITBS Index	*SD*	Effect size
Ethnicity					
Black	0	99,582	44.78	47.92	0.21
	1	5,749	34.70	41.93	0.05
	≥ 2	952	31.76	38.40	
White	0	110,333	100.78	64.68	0.64
	1	4,711	74.66	58.76	0.23
	≥ 2	1,021	59.98	51.31	
Others	0	6,591	85.12	65.68	0.47
	1	294	61.71	59.41	0.10
	≥ 2	65	55.08	46.98	
Grade					
3	0	56,379	76.05	66.02	0.45
	1	2,845	54.46	57.09	0.11
	≥ 2	550	47.67	47.77	
5	0	54,616	72.07	65.25	0.43
	1	2,513	52.68	54.04	0.12
	≥ 2	499	45.14	49.09	
6	0	53,060	75.76	63.00	0.50
	1	2,676	51.72	52.13	0.12
	≥ 2	504	44.22	45.27	
7	0	52,431	74.27	60.82	0.39
	1	2,720	50.71	52.98	0.02
	≥ 2	485	49.51	43.38	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

TABLE 6. Analysis of Covariance for Ethnicity: Difference in the Iowa Test of Basic Skills for Three Levels of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Ethnicity (covariate)	166,849,340.24	1	166,849,340.24	50,812.91	0.000
Mobility	6,239,333.92	2	3,119,333.96	950.07	0.000

TABLE 7. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Mobility	ITBS Index	Nonmove (*pr*)	1 move (*pr*)	2 or more moves (*pr*)
Nonmove	74.35		0.000	0.000
1 move	56.79	0.000		0.000
≥ 2 moves	46.83	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

I also conducted ANCOVA to control the initial difference for grade. Table 8 shows the results of ANCOVA based on differences in the ITBS for three levels of mobility, with grade as the covariate; Table 9 provides a summary of Tukey-Kramer multiple comparison of the ITBS for three levels of mobility, after controlling for grade.

Tables 8 and 9 show that mobility was statistically significant after controlling for grades. Mobile students' performance on the ITBS was lower than that of nonmobile stu-

TABLE 8. Analysis of Covariance for Grade: Difference in the Iowa Test of Basic Skills for Three Levels of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Grade (covariate)	21,863.54	1	21,868.54	5.45	0.020
Mobility	6,440,344.56	2	3,220,172.28	803.2	0.000

TABLE 9. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Mobility	ITBS Index	Nonmove (*pr*)	1 move (*pr*)	2 or more moves (*pr*)
Nonmove	74.5		0.000	0.000
1 move	52.74	0.000		0.000
≥ 2 moves	46.67	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

TABLE 10. 1997–1998 K–12 Suspension Rates for Students With Multiple Enrollments

Group	No. of enrollments	Total students		Students suspended in school		Students suspended out of school	
		No.	%	No.	%	No.	%
State	1	692,296	87.63	50,266	7.27	65,703	9.49
	2	79,354	10.04	8,602	10.86	13,891	17.51
	3	14,831	1.88	1,961	13.24	3,218	21.70
	4	2,762	0.35	380	13.78	621	22.48
	≥ 5	752	0.10	110	14.65	174	23.14
	Total	789,995		61,319	7.76	83,607	10.58
Girls	1	340,402	88.51	16,990	4.99	21,168	6.22
	2	36,020	9.37	2,709	7.52	4,192	11.64
	3	6,583	1.71	626	9.51	922	14.01
	4	1,229	0.32	126	10.25	190	15.46
	≥ 5	344	0.09	34	9.88	45	13.08
	Total	384,578		20,485	5.33	26,517	6.90
Boys	1	351,894	86.80	33,276	9.46	44,535	12.66
	2	43,334	10.69	5,893	13.60	9,699	22.38
	3	8,248	2.03	1,335	16.19	2,296	27.84
	4	1,533	0.38	254	16.57	431	28.11
	≥ 5	408	0.10	76	18.63	129	31.62
	Total	405,417		40,834	10.07	57,090	14.08

dents' performance after controlling for grade. Also, the performance of students who moved twice or three or more times was lower than that of students who moved only once.

The results of the tests of differences on the ITBS for three levels of mobility after controlling for ethnicity, status, and grade level were consistent. In each case, nonmobile students' performance was significantly different from that of mobile students. Students who experienced mobility performed poorly compared with their nonmobile peers. In each case, the performance of students who moved only once also was significantly greater than the performance of students who moved twice or three or more times. Students who experienced one move performed better than did students who experienced two or more moves.

Student suspension. Table 10 shows within-school-year mobility and suspension rates for all students in the

TABLE 11. 1997–1998 Student Mobility From Year to Year

Level	No. of students	Students (%)
State		
Mobile	201,636	28.85
Obligatory	112,880	16.15
Optional	88,756	12.70
Nonmobile	497,276	71.15
Total	698,912	
Grade		
1		
Mobile	13,793	21.54
Obligatory	2,580	4.03
Optional	11,213	17.51
NonMobile	50,252	78.46
Total	64,045	
2		
Mobile	11,245	18.52
Obligatory	1,456	2.40
Optional	9,789	16.12
Nonmobile	49,486	81.48
Total	60,731	
3		
Mobile	12,181	20.61
Obligatory	3,018	5.11
Optional	9,163	15.50
Nonmobile	46,933	79.39
Total	59,114	
4		
Mobile	15,474	26.35
Obligatory	7,214	12.28
Optional	8,260	14.06
Nonmobile	43,261	73.65
Total	58,735	
5		
Mobile	14,146	23.93
Obligatory	5,736	9.70
Optional	8,410	14.23
Nonmobile	45,033	76.18
Total	59,179	
6		
Mobile	30,955	49.71
Obligatory	24,170	38.81
Optional	6,785	10.90
Nonmobile	31,318	50.29
Total	62,273	
7		
Mobile	29,336	46.55
Obligatory	21,363	33.90
Optional	7,973	12.65
Nonmobile	33,678	53.45
Total	63,014	
8		
Mobile	9,973	17.13
Obligatory	1,856	3.19
Optional	8,117	13.94
Nonmobile	48,245	82.87
Total	58,218	
9		
Mobile	47,755	71.48
Obligatory	40,621	60.80
Optional	7,134	10.68
Nonmobile	19,058	28.52
Total	66,813	
10		
Mobile	10,695	18.92
Obligatory	4,551	8.05
Optional	6,144	10.87
Nonmobile	45,823	81.08
Total	56,518	
11		
Mobile	3,845	8.34
Obligatory	68	0.15
Optional	3,777	8.19
Nonmobile	42,266	91.66
Total	46,111	
12		
Mobile	2,238	5.07
Obligatory	247	0.56
Optional	1,991	4.51
Nonmobile	41,923	94.93
Total	44,161	

(table continues)

Louisiana public schools system. The in-school suspension rate (14.65) was highest for students who enrolled in school four or more times within the school year and lowest (7.27) for students who did not change schools. The in-school suspension rates were 7.27, 10.86, 13.24, 13.78, and 14.65 for students who moved once, twice, three, four, or more times, respectively. I observed the same pattern for out-of-school suspension rates, which were greatest (23.14) for students who enrolled in school four or more times within the school year and lowest (9.49) for students who did not change schools. The out-of-school suspension rates were 9.49, 17.51, 21.70, 22.48, and 23.14 for one, two, three, four, or more student moves, respectively.

Year-to-Year Mobility

Table 11 shows year-to-year mobility rates by state and grade level; 497,276 Louisiana public school students (roughly 68%) were stable from year to year. Conversely, more than 201,636 students (27%) moved from year to year. In addition, 112,880 students (15.36%) of 734,916 students had to move to another school because the next grade was not available for them in their current schools,

TABLE 12. The Iowa Test of Basic Skills (ITBS), by Mobile and Nonmobile Students

Mobility	Total no. of students	Students (%)	ITBS Index	*SD*	Effect size
Nonmobile	497,276	71.15	75.18	63.82	0.23
Obligatory	112,880	16.15	72.30	62.67	0.18
Optional	88,756	12.70	60.96	60.53	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

TABLE 13. Analysis of Variance: Difference in the Iowa Test of Basic Skills for Types of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Between	4,714,751.42	2	2,357,375.71	590.71	0.000
Within	874,110,665.93	219,035	3,990.73		
Total	878,825,417.35	219,037	3,220,172.28		

TABLE 14. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Mobility	ITBS Index	Obligatory (*pr*)	Optional (*pr*)	2 or more moves (*pr*)
Obligatory	72.3		0.000	0.000
Optional	60.96	0.000		0.000
Nonmobile	75.18	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

whereas 88,756 students (12.08%) of 201,636 students moved voluntarily to another school even though the next grade was available for them in their schools. Mobility rates were low for Grades 8, 11, and 12, at 16.37%, 7.98%, and 4.93%, respectively. However, mobility rates were high for Grades 9, 6, and 7, at 65.86%, 47.65%, and 44.52%, respectively.

Test performance. Table 12 shows the relationship between year-to-year mobile students and their performance on the ITBS. The ITBS for the nonmobile students (75.18; effect size, 0.23) was greater than was the ITBS (72.30 and 60.96; effect sizes, 0.18 and 0.15, respectively) for the mobile students who moved to another school from the school in which they were enrolled the previous year. The ITBS scores for nonmobile students (75.18) were higher than were the ITBS scores for obligatory mobile students and optional mobile students. Also, the test performance of obligatory mobile students was better than that of optional mobile students. The ITBS scores were 72.30 (effect size, 0.18) and 60.96 (effect size, 0.15) for obligatory and optional mobile students, respectively. In both cases of mobility, the ITBS scores were significantly lower for mobile students than for nonmobile students. Although students who experienced obligatory or optional mobility performed poorly compared with their nonmobile peers, ANOVA contributed a determination of statistical significance and relative influence of the two types of mobility.

Results of the test of the differences on the ITBS for the types of mobility variable are reported in Tables 13 and 14. The results of ANOVA and multiple comparisons indicate that the performance of obligatory and optional mobile students on the ITBS was significantly lower than that of nonmobile students. (Optional mobility also was significantly different from obligatory mobility.) In sum, from year to year mobility also appears to be statistically significant.

Ethnicity and grade level. I examined student ethnicity and grade level in terms of mobility (see Table 15). In each ethnicity group and grade level, mobile students' ITBS was

TABLE 15. The Iowa Test of Basic Skills (ITBS) for Types of Mobility, by Ethnicity and Grade Level

Student mobility	Mobility	Total students	ITBS Index	*SD*	Effect size
Ethnicity					
Black	Nonmobility	64,906	45.30	48.10	0.12
	Obligatory	22,174	44.16	47.01	0.10
	Optional	15,075	37.66	44.74	
White	Nonmobility	74,657	100.78	64.50	0.17
	Obligatory	23,516	98.08	64.06	0.13
	Optional	11,775	90.01	64.84	
Others	Nonmobility	4,456	82.81	64.78	0.04
	Obligatory	1,423	86.58	65.48	0.10
	Optional	676	80.35	66.19	
Grade					
3	Nonmobility	45,655	76.66	66.07	0.25
	Obligatory	3,541	74.39	64.73	0.22
	Optional	7,684	60.71	60.73	
5	Nonmobility	40,618	72.38	65.34	0.16
	Obligatory	4,948	70.52	62.33	0.13
	Optional	9,544	62.38	61.95	
6	Nonmobility	27,382	77.06	61.28	0.23
	Obligatory	20,787	72.94	63.99	0.17
	Optional	5,537	62.33	60.69	
7	Nonmobility	30,364	75.22	60.33	0.28
	Obligatory	17,837	71.78	60.76	0.22
	Optional	4,761	57.73	57.18	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

TABLE 16. Analysis of Covariance for Ethnicity: Difference in the Iowa Test of Basic Skills for Types of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Ethnicity (covariate)	115,101,225.29	1	115,101,225.29	33,216.69	0.000
Mobility	4,622,712.82	2	2,311,356.41	667.03	0.000

TABLE 17. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Mobility	ITBS Index	Obligatory (*pr*)	Optional (*pr*)	Nonmobile (*pr*)
Obligatory	72.52		0.000	0.000
Optional	63.98	0.000		
Nonmobile	74.62	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

lower than that of the nonmobile students. Also, the performance of students who moved optionally was lower than that of the nonmobile students. For all students, the ITBS scores for nonmobile students were significantly different from the ITBS of mobile students. For grade levels, the ITBS scores for nonmobile students also were higher than

TABLE 18. Analysis of Covariance for Grade: Difference in the Iowa Test of Basic Skills for Types of Mobility

Source	*SS*	*df*	*MS*	*F*	*pr*
Grade (covariate)	11,616.65	1	11,616.65	2.91	0.001
Mobility	4,622,712.82	2	2,311,356.41	579.07	0.000

TABLE 19. Summary of Tukey–Kramer Multiple Comparison of the Iowa Test of Basic Skills (ITBS)

Mobility	ITBS Index	Nonmove (*pr*)	1 move (*pr*)	2 or more moves (*pr*)
Obligatory	72.5		0.000	0.000
Optional	61.06	0.000		
Nonmobile	75.19	0.000	0.000	

Note. The ITBS is based on student performance and calculated at the state level, as well as at school and district levels.

those of obligatory mobile students and optional mobile students.

I conducted ANCOVAs to control for initial difference in the ITBS from the ethnicity and grade-level variables. ANCOVA that was based on differences in the ITBS for the types of mobility (obligatory, optional, and nonmobility) with ethnicity is reported in Table 16, and a summary of Tukey-Kramer multiple comparison of the ITBS for the types of mobility after controlling for ethnicity is shown in Table 17. Tables 16 and 17 show that the differences in the ITBS for the types of mobility after controlling for ethnicity status were still significant. In either case, nonmobile students' performance was significantly different from that of mobile students. Students who experienced mobility performed poorly when compared with their nonmobile peers. In each case, the performance of the students who experienced obligatory mobility was better than that of students who experienced optional mobility.

I also conducted ANCOVA to control the initial difference for grade. The results of ANCOVA that were based on difference in the ITBS for the types of mobility (obligatory, optional, and nonmobile) with grade as the covariate are shown in Table 18, and a summary of Tukey-Kramer multiple-comparison of the ITBS for the types of mobility after controlling for grade is shown in Table 19. Tables 18 and 19 illustrate that from year to year mobility appears to be statistically significant after controlling for grade. The mobile students' performance on the ITBS was lower than was the nonmobile students' performance after controlling for grade. Also, the performance of students who experienced optional moves was lower than that of students who experienced obligatory moves.

The results of the differences on the ITBS for year-to-year mobility after controlling for ethnicity status and grade level were consistent with within-school-year mobility. In each case, the performance of nonmobile students was significantly different from that of optional and obligatory mobile students. Students who experienced year-to-year mobility performed poorly compared with their nonmobile peers.

The following results emerged from this study. First, as the number of multiple transfers within a school year increased, student performance on the Louisiana Educational Assessment Program (LEAP; 1998) tests decreased. Second, suspension rates were high for students who enrolled in schools several times within a school year. Third, LEAP indexes of students who transferred to a school that was different from the one they attended the previous school year were lower than those of students who did not transfer. Fourth, especially for students who optionally transferred to a school that was different from the school attended the previous school year, LEAP indexes were significantly lower than for students who did not transfer to another school. Fifth, for students who obligatorily transferred to a school that was different from the previous school year, the ITBS scores were significantly lower than for students who did not transfer to another school.

Discussion

A negative relationship exists between mobility and student test performance and behaviors. I recommend that educators give particular attention to students who have experienced single or multiple transfers within a school because these students are more likely than other students to incur discipline and performance problems.

Because the performance of obligatory students was lower than the performance of nonmobile students, K–12 grade structures for public school systems appear to be much more appropriate than *grade-segregated* structures, which are schools specific to only a few grade levels, such as elementary, middle, and secondary. Specifically, the unit school (K–12) that restricts mobility appears to have a positive relationship with student academic performance. However, I found little evidence for making a recommendation about K–12 organization and, instead, support further research regarding school level.

Educators must be aware of a negative relationship between mobility and student performance. Children who change schools frequently face many challenges to their success in school, which can make learning and achievement difficult. Educators need to develop strategies that target their school population and to work with parents and inform them about the negative effects of changing schools. Finally, new student record systems might be helpful to school personnel by allowing them to make more timely and informed judgments about services for mobile students.

Although I found that students who experience frequent transfers perform poorly, data do not show the reasoning behind the moves. In other words, I do not know whether the change in schools contributed to poor performance or whether students who already had low achievement and behavior problems moved because their parents wanted to provide a "fresh start" in a different environment. Reasons for those students changing schools could be a topic for new research. I do believe, however, that controlling poverty would reduce the impact of mobility. Although a discussion of a global approach to controlling poverty is beyond the scope of this study, I recommend that researchers pursue the topic in further investigations.

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