KIDS ON THE MOVE: THE EFFECTS OF STUDENT MOBILITY ON NCLB SCHOOL ACCOUNTABILITY RATINGS

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The purpose of this study was to establish the relationship between urban school mobility and school ratings, one of the performance indicators mandated for schools under the 2001 No Child Left Behind Act (NCLB) by the Ohio Department of Education (ODE) and the U.S. Department of Education. While many studies have linked school mobility and achievement (Alcoser & Shoho, 2001; Azcoitia et al., 2003; Daughtry & Greene, 1961; Downey & Pribesh, 1999; Felner et al., 1981; Fried & Whalen, 1973; Ingersoll & Eckerling, 1989; Kerbow, 1996; Levine et al., 1966; Rumberger & Larsen, 1998; Rumberger, 2003; Schafft, 2002, 2003; Sewell, 1982; Wood et al., 1993), no study has defined the complex links among school mobility, ethnicity, socio-economic status, and the specific state and NCLB performance requirements to which all U.S. public schools are now accountable. A secondary purpose of this study was to critique current research methodology for mobility.

Research questions examined in this study include: Is there a significant relationship between school mobility and the school's overall school ranking category? Can knowing the mobility of a school help predict its probable rating? If there are such relationships, how does that significance compare to the effects of ethnicity and socioeconomic status?

Definitions

Mobility

Student mobility refers to changes in school enrollment at times other than those prompted by program design (Staresina, 2004). Although many (58%) of these changes are related to residential moves, 42% are initiated by the school or related to issues and problems arising at the school (Kerbow, 1996). Urban schools serving children whose families live in poverty often display high mobility rates.

Stability

Stability, the global but not mathematical opposite of mobility, refers to students whose enrollment is continuous. For example, a school in which 90% of the students are stable, but the other 10% turn over six times has a different mobility rate than the school in which those 10% only turn over once. A high mobility school is one in which 20% or more of the students are mobile. Schools with 30% or more of such students are considered very high mobility schools.

Many researchers believe that mobility operates as an independent factor in school and student performance, while others see mobility as a compounding factor that affects achievement indirectly, if at all (White & Thomas, 1991). This latter group believes that such factors as family income, ethnicity, and parental educational status are better predictors of achievement. If mobility is an independent factor, do high mobility schools have any chance to succeed on the Ohio and NCLB performance indicators? While Ohio already complies with the NCLB requirement that mandates mobility to be taken into account when rating schools, the use of the more general stability rate to measure mobility may prevent this adjustment from having the effect intended by Congress when it supported the NCLB legislation.

School as a Unit of Study

School personnel in high mobility schools are acutely aware of the functional designation of the school as the unit of change under NCLB. Although curriculum alignment with standards may occur district-wide, the outcomes of the particular school determine rewards and sanctions under NCLB and Ohio's accountability measures. Schools serving urban students who live in poverty, with some exceptions, have the greatest distance to cover in reaching high performance standards. Rapid student

turnover is a common characteristic of such schools and a source of frustration to staff and parents whose intent is to improve them.

Overview of the Effects of Mobility

Student Achievement

Student mobility in urban schools has been shown to negatively impact achievement (Kerbow, 1996). Despite years of school reform, many high mobility urban schools and districts still face poor test results, a negative social climate, and poor teacher morale (Mansour, 2002).

Previous studies have documented the issues associated with high student mobility in schools (Minneapolis Family Housing Fund, 1998; Perlstein, 2001). Interviews with teachers, parents, and students themselves reveal a "moving target" (Jacobson, 2001; Ligon & Paredes, 1992) of student enrollment. Mobility seems to undercut programmatic efforts to solve school problems and transform schools into effective organizations (Patrick & Hirschman, 2002).

Teacher Views

Teachers associate high student mobility with the extra work necessary to acclimate new students to the existing classroom (Kirkpatrick & Lash, 1990). The higher the mobility in a given school, the more often the classroom teacher has to interrupt, alter, or abandon the planned lesson in order to assess, bridge, or integrate the new student's existing level of knowledge and skills. The teacher must often spend extra time catching the student up to the level or context of the lessons already in progress. Social concerns are also important, since the teacher must ensure that the student begins to fit in, make friends, and become part of the group. New students must be acclimated to new classroom rules and routines as well as those of the school as a whole. Teachers also show a propensity to view highly mobile students as less skilled, less socially able, and less likely to behave themselves in the new classroom (Sanderson, 2003).

Curriculum

Previous research also reveals that in highly mobile schools, so much time is spent repeating and catching students up that lessons often do not progress beyond elemental levels of knowledge or skill (Kerbow, 1996). Able and stable students are put on hold - practicing independently while the teacher's time is taken up with the new student.

Teachers also report the effect highly mobile students have on their stable peers. Higher order thinking skills are sacrificed to basic skills, and even stable students in highly mobile elementary schools are the equivalent of one entire year behind their peers in more stable schools by the end of the sixth grade (Kerbow, 1996).

Staff Morale

Teacher morale suffers when lessons are limited to basic skills. Such high mobility schools become less desirable places to teach and, therefore, are subject to being staffed by new and less experienced teachers (Lash & Kirkpatrick, 1994). While teacher quality does not rely solely on number of years, teachers do need to gain some initial experience in order to learn to plan and execute good lessons. In high mobility schools, teacher mobility may contribute to the unstable environment as much as student mobility.

Records

Student records and cumulative files are problematic in high mobility schools (Franke & Hartman, 2003). Records are often withheld pending payment of student fees. Others are just slow in arriving, subject to the understaffed public school records clerks who are pressed to spend their time enrolling new students, thereby relegating record-sending tasks to a back seat. Classroom teachers are left to conduct their own individual assessments, sometimes subjective, without benefit of testing results or portfolios of student work to guide them (Asher, 1991). Delay of special education records is a particular problem because of

the individuality of each child's disability, strengths, and needs. In some cases, students entitled to special education services are placed in regular classrooms where their needs are unknown, and may not be connected with services for weeks or months.

Testing

Emphasis on testing is primary in high mobility schools (Karp, 2002). This reduces actual teaching time, which exacerbates the problem of trying to move the students and the school forward academically. Such emphasis is common, as whole days of what could be new instruction give way to review, test preparation, and practice activities. The pressure on low-performing urban districts has often resulted in the addition of local batteries of tests being added to the already existing state standard tests, such as the "benchmark" testing program of the Cincinnati district. This practice subtracts even more days from instruction. The testing schedule in high mobility districts is so intrusive that one administrator opening a schedule for the year's battery of annual testing recently remarked, "Why don't they just send us a list showing the days left for teaching? It would be shorter." (Morton, personal communication, September 3, 2004)

Social Effects

Parents of highly mobile students consistently report social problems arising from frequent school changes (Filippelli & Jason, 1992). Some children become withdrawn and silent, while others become defensive and aggressive, initiating or participating in fights at the new school in order to fit themselves into the sometimes tightly woven existing social groupings (Mansour, 2002; Rhodes, 2000). Some mobile children literally fight their way in, rather than being ignored or outcast by such groups.

Parents report resistance and sometimes defiance by children who are told that they will be changing schools again (Mansour, 2002; Rhodes, 2000). Others in very unstable families seem to expect it as a normal part of life. Yet, they may be left unable to establish long-term relationships with peers or adults, which are beneficial to younger as well as older children.

Parent Views

The decision-making process for highly mobile parents is sometimes fraught with a lack of information, or highly subjective and false information (Mansour, 2002). Some mobile parents rely strictly on what other parents have told them about a school. They are less likely to apply for alternative or magnet schools or specialized programs. Such families often travel a circuit of closely located schools, often within a limited geographical area of poverty (Azcoitia et al., 2003; Kerbow, 1996). In spite of available official information on school performance, such as ODE's School Report Cards, highly mobile families tend to move students from one unsuccessful school to the next.

Negative interactions with or impressions of teachers and administrators, as well as unresolved discipline and special education issues, are often at the root of parents' decisions to change schools. This issue is a source of disconnection between parents and teachers, since teachers often believe that changes are made mostly because of residential changes (Mansour, 2002). The reason for this may be that highly mobile parents, particularly those living in poverty, may be reluctant to express the degree of their dissatisfaction about school quality to school staffers (Payne, 1998); therefore, the actual reason for the move may not ever be revealed to those most responsible for the school environment. What could be valuable feedback is left unheard. In other instances, that negative feedback may be heard, but not heeded.

Student Perspectives

Students are also a rich source of information for researchers studying school mobility. These young nomads can describe in detail what precipitated their various school moves and can give global assessments of each school's performance from their own and their parents' perspectives. Such assessments include that a given school might be "too low" in academics, that they didn't get along with the kids there, or that the school had poor discipline or a deteriorated social climate (Rhodes, 2000). They may report perceptions that the teachers in a school cared or didn't care about them or other students.

Students relate vividly their recollections of first days in new schools. They are conscious of whether they are walked to the new class by staff or students and whether they are adequately greeted by the teacher. They also observe whether the teacher engages the class in activities designed to "break the ice" and encourage social interaction between existing students and the

new student.

Highly mobile students report feeling lost (both physically and academically), overwhelmed, and isolated in new school settings. They mourn the lost friendships left behind at their old schools. Some describe outright hostility on the part of existing students as they arrive, leading to verbal conflict and sometimes fights. Some of these fights are seen as necessary in order for the students to establish themselves in the social pecking order or to deter further acts of violence on themselves. Both boys and girls describe this strategy in situations where they felt they were being tested as newcomers and could not afford to be seen as "weak."

Some students adopt and are able to outline specific strategies they pursue in order to make new friends and break into existing social circles (Rhodes, 2000). Linking strategies are common, and one girl describes a technique of aligning herself immediately with the perceived underdog of the class in order to just have someone to talk to initially. She uses that friend to get to know other students' names and information about them, then uses this information to make decisions about with whom to try to make friends.

One group of four mobile siblings relate that they gathered in the lobby after high school classes were over on the first few days to just talk and laugh socially (Rhodes, 2000). The sister that described this strategy said that because there were four of them, they could "create their own crowd," which would then attract other students to the conversation. The students who joined the conversation were unaware that the students were even siblings, as they were just attracted to a lively group. This led to introductions and new friendships.

The effects of student mobility are multi-dimensional, making the solutions to high mobility complex and multi-faceted as well.

Measuring Mobility

Recognition

In the effort to refocus on major school problems that can account for school failure, mobility has slowly gained recognition. Following a comprehensive study by the federal government in 1996 (GAO), the No Child Left Behind Act of 2001 recognizes mobility as a factor in achievement. Mandates to the states in NCLB include that the state's own accountability model must be adjustable for mobility, though it does not specify the manner in which this is to be done.

While administrators and teachers may recognize mobility as an impediment to school and student progress, efforts to measure and track mobility are inconsistent. In Ohio, the ODE does not require districts to produce detailed mobility data. State reports labeled "Mobility" actually represent stability rates, not true mobility rates (ODE, 2004). Even that "stability" is based on students present only half the year or more. Research based on these kinds of figures will invariably given conservative results as to the impact of mobility on achievement. Individual districts sometimes have the interest to keep more detail than the state requires, but as the amount and sophistication of data requirements increase, and funding remains the same, the tendency is for districts to produce only what is minimally required.

Officials may fear misinterpretation of complex mobility data, and on face value, in high mobility areas, release of this data may make the district, dependent for tax levy support, look bad to the public. Add these factors to the staff time needed to collect and compile these figures and the *disincentive* becomes clear: why should any district spend its own staff time generating non-mandated data which will only undermine its own public relations and funding strategies?

Methodology Debate: Stability vs. Mobility Rates

The reliance of the Ohio Department of Education on either of the two different stability rates for a mobility measurement does not reflect current research on mobility. Although many different measures and definitions of mobility have been used, a common formula has begun to emerge in recent studies. This formula enables the researcher to differentiate among schools that have the same percentage of mobile students, but a very different frequency of enrollment changes among the non-stable population.

Policy Implications

In addition to satisfying ODE and NCLB mandates, local and state education agencies must decide what strategies to pursue to perform well according to public expectations and sound educational practice. Because these mandates often control funding, district priorities can be determined by these mandates, and best practice can become of secondary importance.

Mobility Policy

While districts generally have policies governing student transfer, it is common for such policies to sound stringent, yet contain numerous loopholes which can then be used for administrative convenience without regard to sound practice. A typical example from a school district illustrates this. In one section, a policy declares that "Any request for an attendance-area exception will be granted only under extraordinary circumstances." (Indian-Prairie, 2001, p. 1). On its face, this policy seems to promote stability, yet these extraordinary circumstances are defined as family moves, agency request, family hardship, psychological, health, social, emotional needs, or administrative placement (Indian-Prairie, 2001). All of these circumstances are commonplace, not extraordinary. Such policies are the result of compromises among the demands of parents, teachers, budget concerns, and other community forces. Yet with such a policy, there is little expectation of stability communicated to field administrators.

Without a state or federal mandate, it is unlikely that districts will collect the needed data for further mobility study or design policy to promote stability. Neither the districts nor the state have any current incentive to do so, since other states, like Ohio, lack a common language about mobility or a common formula that could enable research at the national level.

Without strong transfer/mobility policies at the district level, school administrators bow to community, parent, teacher, and budget pressures by transferring children. In the absence of effective policy, principals may solve short-term problems of discipline at the expense of school stability.

A variety of remedies exist to attain or restore stability to schools. Previous research documents a two-fold approach to solutions for high mobility: prevention of mobility itself, and mitigation of its negative effects. A community-building approach, from instruction to curriculum, is recommended to promote stability.

Lack of Common Terms

Obstacles to early researchers were substantial and no doubt precluded some from pursuing the subject. There was little common language for conducting study in the subject (Ligon & Paredes, 1992). Data that had to be collected - grades, attendance, transfer information and the like - were kept differently by different districts and even different schools within districts, so any comparison work was quite painstaking (Levine et al., 1966).

While there have been some breakthroughs in research, particularly the JAMA (Journal of the American Medical Association) study (Wood et al., 1993), a Congressional report (U.S. General Accounting Office, 1994), work in the Chicago Public Schools (Kerbow, 1996), and California studies on attendance and graduation rates (Rumberger & Larsen, 1998), mobility research still is hampered by lack of theory and lack of a common measurement language. It is a "wildcat" field - the researcher picks the measurement terms (Ligon & Paredes, 1992). In 46 studies examined, there are 34 definitions of mobility. In the literature, children are referred to as high mobility with everything from one move in elementary school to multiple moves in any number of years, according to the purpose of the writer.

More recent research in England establishes categories of "high mobility" as that above 20% using a "joiners plus leavers" (JPL) formula, while defining schools above 30% as "very high mobility."

"Stability" has a similar number of multiple definitions in these studies. To further complicate the matter, while stability may be the global opposite of mobility, the calculation of stability figures is not just the subtraction of the mobility rate from 100%. Stability, when used as a specific term in mobility research, represents the number or percentage of students who are continually enrolled in a given school from the start of that year to the end. The sum of both stability and mobility figures in individual schools may exceed 100% because the most commonly used methods of measuring mobility recognize that when one child leaves, and another arrives, there are two changes, even though the population may remain the same (Fowler-Finn, 2001). This is

appropriate, since both the leaving and the arriving have separate associated tasks and complications. The leaving child triggers a need for records transfer, for example, while the arriving child requires curricular assessment and social acclimation.

One limitation of the data is that districts generally compile their fall numbers in October, usually the second week, and their spring numbers in May. This practice can make many student transfers invisible, since it is typical in some districts for many children to transfer in the first six weeks of school or the last few weeks. For this reason, mobility figures in many schools are underreported.

Previous Research

In 1993, an important report came from outside the school community that verified the mobility-related concerns within. Doctors at the highly acclaimed Mt. Sinai Medical Center presented findings in the Journal of the American Medical Association (JAMA) (Wood et al., 1993). These pediatricians presented a full report to the medical community on the effects of student mobility. The methodology included use of the NELS: 88 data with nearly 10,000 children. In this watershed study, the data were controlled for ethnicity and socioeconomic status. Other factors included were maternal age, gender, family structure, parental education, and urban/rural status. Mobility as a factor was identified as a significant variable.

The JAMA study stated that frequent relocation was associated with higher rates of all measures of childhood dysfunction. The work documented an increased risk of behavioral problems and grade retention for those students who had frequently changed schools.

Even the youngest of students are affected by mobility; in fact, many researchers point to a more significant relationship between achievement and mobility in children of kindergarten through the third grade (Temple & Reynolds, 1999) than in later grades. In an earlier Head Start study, Reynolds (1990) identified five factors that significantly impacted low-income minority Head Start students at the third grade level. While the first three factors consisted of issues not under the schools' control, the fifth factor was school mobility, just after parental involvement. Reynolds concluded that while parents have some control over mobility, they tend to have much more control over their own involvement in school activities than school stability. Both are related to common decision-making in the child's best interest, and both may be affected by income and other economic-related factors, such as housing.

Still, the study was important because of the previously common assumption that the early grades may be a time in which it may not matter whether the child is moved or not. Many families, regardless of income, may not be aware of the loss of cognitive performance that can occur within the first three years from excessive mobility (Alcoser & Shoho, 2001). Stable relationships with a teacher or other school personnel, or at least same-school routines, are thought to benefit the child in these early grades.

Filippelli and Jason (1992) identified three areas of concern when children change schools: peer approval, academic and behavioral standards, and teacher acceptance. In each of these areas, students may rise or fall as they struggle to make the shift.

In 1994, the medical community again contributed to the discussion by studying over 10,000 Denver elementary students who had moved. Simpson and Fowler (1994) theorized that highly mobile students would find it difficult to form new friendships, with younger students hampered in developing socialization skills and older ones having trouble breaking into established cliques. Excessive fears of loss, the unknown, and reduced parental attention were predicted to contribute to behavioral or emotional problems. In their findings, children who had moved three or more times had a significantly increased risk of emotional and behavioral problems over those who had moved twice or less. The same children were at 60% greater odds of repeating a grade and 80% more likely to have been expelled or suspended.

In their discussion, these authors cited the lesser autonomy that children have in a moving situation than the adults involved, and noted that the upheaval caused by a family move means that parents are likely to be distracted and unavailable for both practical and emotional support at the very time a child may most need it.

Policy and Practice

Corrective practices suggested by Kerbow (1996) and other key researchers generally center on two areas: how to reduce

mobility, and how to mitigate any harmful effects once it has occurred. Not all researchers think that mobility can be reduced by the school community, but some do. Kerbow points to the large percentage of mobility that occurs within-district and because of the local district policies. One-third of the transfers in his 1996 study were the resolution of a disciplinary, safety, or academic conflict.

Kerbow (1996) also found that in urban systems, transfers tend to occur within small geographic sub-systems. He advocates an "aggressive campaign to hold students" (p. 164) by resolving conflicts without using transfers, having principals coordinate when students transfer, using transportation tools, granting transfer requests sparingly, and providing alternatives. In addition, he supports community-building within the school and in the broader school communities as a strategy for giving parents and students a sense of control and investment, thereby increasing the desire to remain at the school.

Theoretical Foundations

Constructivism

What theory supports the concept that continuity facilitates learning? Social constructivist theory posits that learning requires a functional, social environment. It results from social processes in which the learner associates experience with language and thought. Constructivist Ernest von Glaserfield (1997) credits Vygotsky and Piaget with creating the underlying concepts that give rise to understanding constructionist thought. Constructivists believe that knowledge does not exist in isolation, but is the result of the learner's interaction with the environment.

If experience is necessary for learning, two consequences of excess student mobility would follow. First, the sequential activities, or what Bruner (1960) calls the "building blocks" of learning, would be disrupted. Some experiences are repeated for the mobile student, while other experiences are missing altogether. Secondly, repeated changes of school and residence are meaningful experiences in themselves, and re-focus the child's attention on matters other than curricular. It follows that the order of Maslow's (1970) hierarchy of human needs would be reversed, with students expected to perform higher-order thinking skills before their basic security and sense of community is addressed.

As an example, we can consider the experience of two eighth-grade students in a classroom. One is new, leads a highly mobile life and has been to six different schools. The other is in the same school in which he began kindergarten, is well known to peers, and popular. The teacher says, "Let's all get into groups of four." Two students may hear the same words and intonation from the teacher, but the direction may strike fear and anxiety in the new student, while representing a fun opportunity to the other. Social constructivists would point out that the new child is responding to an underlying meaning that his experience has caused: Will anyone invite me into their group? The other child's response is based upon his existing positive relationships with other students, and previous group and individual experience with those peers.

Both children in the above example heard the same words, yet it was the meaning attached to those words which caused the different reactions.

Maslow and Mobility

Several theoretical concepts exist, in addition to constructivism, which most directly address how school mobility functions. Maslow's 1970 well-known self-actualization theory is a conceptual model that is actually contradicted by high mobility. In Maslow's conical model known as the hierarchy of needs, survival, self-worth, and a sense of belonging are foundations necessary before self-concept and self-actualization, which enable students to use creativity and higher-order thinking skills (Maslow, 1970), can be achieved.

Transition shock is a theory developed by Janet M. Bennett (1998), in which there are four stages. Transition shock is marked by "cognitive inconsistency," in which a state of loss and disorientation is precipitated by a change in one's familiar environment that requires adjustment. Bennett says that the more familiar concept of culture shock is a sub-category of transition shock. Both could apply to young students finding themselves uprooted and in an unfamiliar environment. As students move through the stages, they will be unable to truly embrace new concepts until the final stage.

In the exploratory phase, self-protective mechanisms are in place (fight), analogous to active resistance to the change. In the second phase, the crisis phase, discouragement and withdrawal (flight) are common. These actions can be considered passive resistance. Next, comes the recovery and adjustment phase, where defenses are lowered and new stimuli can be absorbed. Finally, the accommodation phase occurs, where a flexing of worldview occurs and adaptation can take place. These transition phases are very useful to think of in terms of children who transfer and what having large numbers of transferred children does to the school environment.

Social capital (Downey & Pribesh, 1999; Putnam, 1995) and resiliency theory (Chavkin & Gonzalez, 2000) are also be applicable as a means of explaining why some individual students seem able to weather school changes better than others. Both theories can identify the phenomenon of students who survive and thrive in spite of the obstacles presented by frequent moves. Both of these theories posit that family support and relationships with other trusted adults are significant factors in such success. Highly mobile children, often from single-parent families, may lack the degree of support found in more stable families, and their relationships with trusted adults are constantly interrupted, or may never develop for lack of that trust.

Also in the educational domain, we can look to John Dewey's (1938) continuity theory. He asserts that humans are sensitive to experience and each experience is stored and carried into the future. Because of this stored experience, educators must realize that, while teachers may bifurcate their lives into work and home, children are less able or inclined to make these distinctions. Both school and home experience merge as a total "quality of life" experience.

This constitutes a *de facto* learning theory - the theory that students are busy learning *everything* they are actually taught by the combination of all they experience, not *de jure*, which consists of official school/homework hours, written curriculum and lesson plans (Rhodes, 2004). These Latin legal terms, popularized in the legacy of the Brown case ("*Brown v. Board of education of Topeka*", 1954), are useful in pointing out the differences between what our society (or schooling) says it does by rule or law (*de jure*), and what it actually does in fact (*de facto*).

While the lesson plan for the day may indicate that the mobile child is to learn long division, the actual learning may consist of the lesson that food is hard to find in the new house, Mom is too tired to help anyone get ready for school, and the people in the new school are not very friendly. The child who learns one day that s/he is "on his or her own" or that the new adults in his or her life are mean, learns something very different than long division. Furthermore, his or her ability to focus on long division at all that day may be significantly altered. Conversely, if educators are able to construct a warm, welcoming environment, the child learns a different *de facto* lesson: that adults and peers are there to help, glad to meet and get to know the child, and are open to learning about this child as a person with individual talents and skills.

If the child is fed, his/her fears addressed, and s/he is made to feel as though s/he belongs to this new grouping, then all three of the foundation issues on Maslow's 1970 scale have been resolved. This is the power of a good school, and the impact such a school can have on the totality of a child's life, even if other factors outside of school are not optimal. Such a school becomes a haven and can offset or counterbalance some of the negative experiences involved in poverty (e.g., sub-standard or temporary housing, and other less-than-optimal life conditions). The result, Rhodes (2005) predicts, is an increase in locus of control - the sense that one's actions can affect one's future - and the development of resiliency (Chavkin & Gonzalez, 2000).

Methodology

The statistical strategy used in this study was predictive discriminant analysis. This method enables the researcher to determine whether any or all of the independent variables (mobility, ethnicity, socioeconomic status, or school enrollment size) can predict outcomes on a dependent variable, in this case, school ratings.

Data

This study identified quantitative relationships among five variables related to achievement and school mobility. Data were drawn from the Ohio Department of Education for eight urban districts representing 527 schools that were rated by ODE for the 2003-2004 school year. Primary sources included ODE's Power User Reports on Mobility, Enrollment, and School Ratings, and from the state's Downloadable Data Reports, the Racial/Ethnic and Economic Status Reports were used (Ohio Department of Education, 2004).

Special schools that display a 100% mobility rate, and those more than four standard deviations from the multivariate norm were considered outliers and were removed. Outliers (17) were deleted for schools in which x2 exceeded critical x2 at p < ,001. Many of these schools enroll only students who are dropping out of "regular" schools, or who receive discipline or academic referrals from other schools during the school year and therefore are completely mobile by design. Using data from these schools would have skewed the tests and given false results, therefore, they were excluded.

Five categories of data were the source of information for the quantitative analysis. They are: mobility, school ratings, ethnicity, socioeconomic status, and school enrollment size. These measures are mandated and collected by the state under ODE's accountability system developed under the requirements of NCLB.

Statistical Tests

The following assumptions, used when discriminant analysis is employed for classification purposes, were tested:

1. The observations on the predictor variables must be randomly sampled and must be independent of one another.
2. The sampling distribution of any linear combination of predictors displays multivariate normality.
3. Homogeneity of covariance matrices assumption (homoscedasticity) must be present.
4. The relationships among all pairs of predictors within each group must be linear (Mertler & Vanatta, 2005).

In addition, sample size was verified to exceed the suggested 20-1 ratio at 527 total cases for the five chosen variables.

The sample of 527 schools was tested. The mean, standard deviation, Kurtosis, and skewness were checked. Univariate outliers were removed (17). Four additional schools were removed from the sample because each was missing one or more of the discriminating variables. No multi-collinearity was found.

In testing for homoscedasticity, scatterplots were visually examined. Scatterplots reveal some variables approaching normality, and others not, indicating possible inadequacy of homogeneity of variance-covariance matrices.

After examination of Box's M, it was clear that while mobility was normal, the other variables were not, as significance was shown. Transformation partially remedied, but failed to completely remedy this problem. While this assumption was violated, discriminant analysis is robust to this violation as long as it is due to skewness rather than outliers, which was true in this case.

Next, significance tests and statistics for the strength of the relationship for each Discriminant function were run in the form of Eigenvalues, including the eigenvalue, percent of variance, and canonical correlation. Effect size (n 2) was calculated by squaring the canonical correlation. This indicates the percent of variability in the function explained by the different levels in the DV.

Wilks' Lambda, chi-square, degrees of freedom, and level of significance provided chi-square tests of significance of each function. These tests were used to determine the number of functions to interpret.

Finally, each function was interpreted by examining the variables that were most related to it, shown by the Standardized Canonical Discriminant Function Coefficients and the Structure Matrix. The accuracy of the functions in classifying subjects into the appropriate groups was then observed using the Classification results. Group means for each function (Group Centroids) were reviewed.

Results

In spite of transformations, normality was not obtained for ethnicity, school enrollment size, or socioeconomic status, however, discriminant analysis is considered robust to violations of multivariate normality.

The average school enrollment in Ohio's urban districts is 476. The mean for mobility is 29.5% (very high), the mean non-White

population is 71%, and the mean for economically disadvantaged students is 77%. A simple correlation was run to determine initially whether there was any relationship between mobility and school ratings. The correlation was significant (r = -.406, n = 506) at the .001 level (two-tailed).

Out of the 506 cases, numbers for each school rating category are shown in Table 1. Note that the highest rating, Excellent, contains only 16 schools, while the lowest category, Academic Emergency, contains 127 schools. Over half of the urban schools in Ohio fall into the center category, Continuous Improvement, and a quarter are in the lowest category, Academic Emergency.

Table 1
Ratings Categories and Mean Mobility Rates

School Ratings	Valid N	%	Mobility %
Academic Emergency	127	25.1	33.6
Academic Watch	40	7.9	29.4
Continuous Improvement	278	54.9	27.8
Effective	45	8.9	18.9
Excellent	16	3.2	12.3
TOTAL	506	100.0	100

Box's M (Table 2) showed significance, which indicates violation of the assumption of homogeneity of covariance matrices. This problem, which will be discussed under the limitations section, is predicted to make more cases incorrectly classified in the final result, thus reducing the rate of accuracy. The F indicates significance, indicating that the assumption is violated. However, the resulting error is likely to be an underestimation, not an overestimation of the relationship between the independent and dependent variables.

Table 2
Box's M

Box's M		3.386
F	Apprx.	142.090
	df1	40
	df2	18462.818
	Sig.	.000

ANOVA results show very significant values for all four of the predictor variables chosen, and were particularly high for mobility (32.164).

Table 3 also demonstrates that all four variables show significant differences on the five ratings.

Table 3
Tests of Equality of Group Means (ANOVA)

	Wilks' Lambda	F	df1	df1	Sig.
Mobility	.796	32.164	4	501	.000
SES	.858	20.666	4	501	.000
Ethnicity	.850	22.113	4	501	.000
Size	.926	10.048	4	501	.000

In the use of discriminant analysis for prediction and classification, the generation of the actual discriminant functions is key. These functions are different representations of linear equations of the relationship among the variables, which are weighted. Out of many possible functions, the number of total variables (both DV and IV) minus one will be the number of functions generated. It is then part of the analysis to identify which, if any of these, show significance, and to label them using whatever variable or combination of variables make sense for identification. In the first function generated, mobility shows the highest coefficient, so that function will be labeled Mobility. The second function identified building enrollment size with the largest coefficient, so that

will be labeled the Size function. The third function will be called SES, and the fourth Ethnicity, as this is the order in which the functions were generated by size of coefficients.

Next, the significance tests and strength of relationship statistics for each discriminant function must be interpreted. A basic look at the functions themselves, numbered 1-4, reveals that Function 1, (Mobility), reveals the mobility variable to explain the greatest degree of the relationship between the DVs and the IV, school rating (Table 4). Over 78% of the classification within school ratings is explained in this function alone.

Table 4
Eigenvalues

Function	Eigenvalue	% of Variance	Canonical Correlation
1 (Mobility)	.469a	78.8	.565
2 (Size)	.073a	12.3	.261
3 (SES)	.041a	7.0	.199
4 (Ethnicity)	.011a	1.9	.106

a. First 4 canonical discriminant functions were used in the analysis

Four functions were obtained and all were significant, indicating that the function of the predictor variables significantly differentiated among the five categories of school ratings.

Wilks' Lambda results are shown in Table 5. These results show that all four functions generated show significance (.000-.018) and therefore, all four will be interpreted in the final classification results.

Table 5
Wilks' Lambda

Test of Functions	Wilks' Lambda	chi-square	df	sig.
1 through 4	.602	253.695	16	.000
2 through 4	.885	61.372	9	.000
3 through 4	.950	25.924	4	.000
4	.989	5.607	1	.018

Function coefficients are shown in Table 6. An examination of the relative values of these coefficients establishes mobility as the strongest factor within the first function, building enrollment size in the second, socioeconomic status in the third, and ethnicity in the fourth. The functions are therefore labeled by these high coefficients. The fact that mobility is the strongest coefficient in the first function indicates mobility as a stronger influence in the school ratings than the other three predictor variables. It can then be expected that in using the mobility function to predict school rating, a strong classification accuracy rate will be obtained.

Table 6
Standardized Canonical Discriminant Function Coefficients

	Function a			
	1 (Mobility)	2 (Size)	3 (SES)	4 (Ethnicity)
Mobility	.661	-.235	-.203	-.723
SES	.338	-.086	1.026	.401
Ethnicity	.479	.121	-.785	.540
Size	.364	.925	.351	-.081

a. Functions are shown in columns, variables are shown in rows.

In order to interpret the four functions, the Structure Matrix table must be used (Table 7). This table shows the four functions with the variables placed in order of their important within the functions taken as a whole.

Table 7
Structure Matrix

	Function			
	1 (Mobility)	2 (Size)	3 (SES)	4 (Ethnicity)
Mobility	.723*	-.327	-.028	-.608
Size	.156	.961*	.107	-.199
SES	.541	-.394	.584*	.459
Ethnicity	.590	.000	-.455	.667*

a. Functions are shown in columns, variables are shown in rows.

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions.

Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

Results also show that the first function, which is the Mobility function, shows a particularly broad spread among the five categorical ratings. By comparing the group means of the functions shown in the Functions at Group Centroids table (Table 8), the Mobility function demonstrates the best fit for the model.

Table 8
Functions at Group Centroids

		Function		
Ratings	1 (Mobility)	2 (Size)	3 (SES)	4 Ethnicity
Academic Emergency	.747	-.100	-.245	-.045
Academic Watch	.656	.862	.115	.045
Continuous Improvement	-.101	-.117	.147	.030
Effective	-1.426	.191	-.101	-.239
Excellent	-1.807	.142	-.618	.395

Out of the 506 schools, the next step is to examine the probability that each case would be assigned to any given single rating category. Because there are five categories of ratings, the probability that any case would be randomly assigned to any given category is one-fifth, or 20%. Table 9 enables us to now see what actual assignment classifications for all cases, using the model developed.

Table 9
Classification Resultsa (In percentages)

		Predicted	Group	Membership		
Actual	AE	AW	CI	EF	EX	TOTAL
AE	54.3	21.3	20.5	2.4	1.6	100%
AW	22.5	50.0	17.5	2.5	7.5	100%
CI	32.4	12.9	30.6	17.6	6.5	100%
EF	6.7	8.9	15.6	37.8	31.1	100%
EX	6.3	0.0	25.0	12.5	56.3	100%

a. 39.5 of original grouped cases correctly predicted.

Table 9 shows that a total of 39.5% of schools were correctly classified using the predictive discriminant analysis model. Since 20% of schools would have been correctly classified by random means, the result shows nearly double the predictive power from

using the model. This shows that the model fit, and that mobility has a significant predictive influence on the rating that Ohio schools are likely to obtain.

The means of the Discriminant functions are consistent with these results. These results also suggest that schools with high mobility are twice as likely to be classified as Academic Watch or Academic Emergency than those schools with low mobility. Schools with higher non-White populations are also more likely to be in these low-ranking categories, as are schools with a high percentage of students from lower socioeconomic backgrounds.

Summary

Discriminant analysis was conducted on four dependent variables - mobility, socioeconomic status, ethnicity, and school size to determine the ability of those variables to predict the school rating that would likely be assigned to the schools. Ratings, assigned by the Ohio Department of Education, included Excellent, Effective, Continuous Improvement, Academic Watch, and Academic Emergency. Four functions were identified and interpreted. Mobility was found to have a predictive rate double that of random assignment. Three of the five ratings categories had a predictive rate of 50% or more. In addition, schools with high mobility were twice as likely to be assigned one of the two lowest ratings. High percentages of poor children and non-White children were found to be more likely to be classified into the two lowest ratings as well.

Conclusions

The primary conclusion drawn from this study is that mobility is a significant factor in predicting school success under the ODE/NCLB accountability system. Given the conservative nature of the mobility figures used in the study (test scores from children who are not enrolled 120 consecutive days in a school are not used in the accountability results), the significance may be higher. These findings are consistent with previous research in Ohio linking mobility to achievement (Ohio Department of Education, 1998), as well as being consistent with other research in urban districts (Bracey, 1997; Demie, 2002; Ingersoll & Eckerling, 1989; Kerbow, 1996; Rumberger, 2003).

Secondly, all three of the other tested variables - ethnicity, socioeconomic status, and school enrollment size - also have a significant impact on school success, though not as great as that of mobility.

Limitations

These results only pertain to urban districts, as patterns in suburban and rural schools may be different. The size of the sample, while more than sufficient, does not replace the need to examine a more normal group of schools. This lack of multivariate normality in the sample suggests that a sample across school types should be examined for similarity or differences of results.

No attempt was made to distinguish elementary results from secondary results, as this is a cumbersome process given the many grade-level configurations found in Ohio schools. Closer examination on this basis could reveal elements of interest not shown in this study. The same is true of distinctions between tests scores of various subjects and their relevant effect on the ratings. Math scores, for example, might possibly be lower overall than reading scores in high mobility schools, but this study did not examine that factor due to multicollinearity of the variables.

These results may not be generalizable to urban schools from other states, as the definition of mobility is left up to each state to determine. The definition in this study is limited to the only common statistic gathered (percentage of students present for less than half the school year) and that is not the formula used most frequently by mobility researchers.

A major limitation of this study, as discussed below, is the nature of mobility figures used. If true mobility figures were calculated in Ohio for use in research, it is likely that correlations, coefficients, and classification accuracy would be higher.

Discussion

School Ratings as Measurement

The history of accountability measures in the U.S. reveals much concern with the role of testing. In 2001, U. S. President George W. Bush signed the No Child Left Behind Act, which mandates standards-based testing in every state (Feller, 2004). NCLB also mandates each state to design a system for regular reporting of results to the public. Most states have or are in the process of adopting ratings-type systems, such as the one used in Ohio. Adequate Yearly Progress (AYP) is a major component of those ratings, and was conceived as a measure of the degree of progress made by individual schools towards complete success on four of the eighteen performance indicators measured in the data required by NCLB by the 2013-2014 school year. It is the ratings system and AYP that codify the use the school as the unit of study.

Ohio's accountability system assigns a rating to each school using three measures: AYP, performance on the state indicators (a combination of minimum required scores on Proficiency and Graduation tests, graduation rates, and attendance rates), and the Performance Index Score (a scaled scored which averages the five subject areas of the Proficiency tests). Ratings can be obtained by different combinations of these three factors, although a school that makes AYP cannot be rated lower than the middle category, Continuous Improvement. The formula relies heavily on test scores.

Both the school ratings systems in various states and AYP have been criticized by opponents of NCLB as arbitrary, since the degree of annual progress expected varies according to the initial performance level of the school (Bowler, 2004; Neill, 2003; Western States Benchmarking Consortium, 2004). These critics maintain that such ratings are inherently unfair to schools serving poor children, who, because of factors related to family and community economics, and independent of staff behaviors, are consistently behind in initial performance (Karp, 2002; Franke & Hartman, 2003).

Impact of School Ratings

Nevertheless, the school ratings measure was established, level playing field or not, and the sanctions faced by schools for receiving one of the lowest two categories - Academic Watch and Academic Emergency - are a sufficient deterrent as to have produced a mad scramble by school staffs to make sure that the thresholds at least for AYP, and therefore, the Continuous Improvement rating category, are met. These sanctions include a progressive range of actions ranging from requiring expert consulting and staff development to complete replacement of the administrative and teaching staff. While the intent of Congress and the President was undoubtedly to offer these sanctions as devices to assist schools, the perception of many educators and some parents is that these measures are negative and punitive at the very least, and in some cases, serve as an actual impediment to the very improvement that is the stated purpose of the NCLB Act (Neill, 2003).

Actual sanctions include development of improvement plans in the first year of sanctions, but also include offering school "choice" to Title 1 school students. Given the results of the study, it is more likely than not that Title 1 schools will find themselves in School Improvement status. These schools then are deliberately forced into an increase, not a decrease, in mobility, by virtue of the choice provision. This provision permits children to transfer to another school after school has already begun in the fall. Kerbow's (1996) work in Chicago has well documented the usual practice - that families tend to transfer from one unsuccessful school to another unsuccessful school. Not only does the choice provision not help the children involved, it further decreases the chances that either the sending or receiving schools will be able to gain enough stability to make improvements.

Other sanctions include decreasing local school management authority, appointment of outside experts, extending the school day or year, replacing the principal and other key staff, and reorganizing the building. Schools serving highly mobile children are actually subjected to these kinds of changes on a regular basis, and they sometimes result only in more instability and chaos rather than positive growth.

After the previous steps, if the school does not turn around within one year, whole staffs are replaced, or the school simply given over to a charter organization or to the Department of Education. In Ohio, charter school achievement results are even more dismal than the public schools.

These sanctions contradict this research and other research findings that indicate stability is required to bring about quality improvement.

The Mobility Variable

Findings from the study reveal three important variables in predicting school success within the Ohio ratings system. Both ethnicity and socioeconomic status have long been known to be highly correlated with academic success and failure (Ogbu, 1994). Mobility data, however, are seldom compiled or studied adequately by districts and its effect has largely remained unknown.

The significance of the strength of mobility in predicting school success lies in the most basic characteristics of these variables. Ethnicity certainly cannot be changed. Socioeconomic status of students is not under the control of schools or districts. Out of these three critical factors, only mobility can be affected by schools and districts. While 58% of student mobility is due to residential movement, the remaining 42% is related to factors linked to the school itself.

Implications for Practice

Solutions for high mobility in schools are generally divided into two categories: those that are designed to prevent mobility, such as strict transfer policies and transportation enhancements, and those that are designed to mitigate its effects, such as community-building approaches to curriculum and instruction. In both cases, the key is designing learning environments that make students and families feel supported and want to stay.

District Rules

In large urban districts, most field administrators do not believe that mobility can be controlled. This is because the district controls some of the major rules that constrict or enable administrators in transferring children. For example, the district controls the transportation department, where economies of scale tend to drive decisions about the rights of students to be transported. These are viewed as decisions on the "business side," as opposed to folding transportation goals into the district's main mission.

Transfer policy is another area of operation that tends to be controlled centrally. While most districts have transfer policies that on face value appear to discourage transfers, most also have loopholes that any principal can drive a truck through if he or she wants badly enough to withdraw a student.

Model transfer policy would enable every school to set early deadlines (perhaps even a district-wide deadline) like magnet schools do. Then the administration has to be strong enough to withstand criticism when schools that are filled declare themselves so and are no longer options. The public, in effect, must be retrained to respect the school as a place of learning that must plan and organize itself.

Ideal transportation policy would involve the right of a student to be transported back to his or her original school, at least for the remainder of the school year, if the family moves. While homeless children have this right under the McKinney-Ventus Act, other children do not.

Common curriculum, at least for basic reading and math in the elementary grades, could ease the transition of students (Clark, 2001). This proposal is controversial, as it seems to be at odds with the idea of community input on curriculum. This is another area under control of the school district.

Finally, the model practice for a district would be to continuously monitor mobility and produce new solutions to reduce it, such as partnering with low-income housing authorities and community health agencies, or conducting a "Stay Put" campaign promoting parental awareness of the potential consequences of high mobility.

School Practice

For the individual school, both structural and qualitative changes are necessary. Structural changes include the establishment of an enrollment and withdrawal protocol that screens for problems causing mobility. As an example, no student should be able to withdraw without a conversation between the parent and an administrator, preferably the principal. In that conversation, problems can be explored and information can be shared that might be able to prevent the transfer.

Schools need welcoming processes such as committees to greet and acclimate new students and new parents as well (Chaika, 1999). The purpose of these committees is to establish contact, and communicate interest, warmth, and a sense of community.

Schools must stop the practice of rejection-based discipline. This common practice is responsible for many school transfers. It originates with discipline problems that escalate. In a less than effective school, these problems are not handled skillfully; teachers feel that administration doesn't back them up and students feel they are singled out. In a school with no tone of decency, wild behavior has free reign and the school feels out of control. In this environment, marginal or transient students with multiple social problems may be very difficult to handle. If the parent is not supportive of the school's discipline, there begins to be a rising tide for withdrawal of the student. "What's he doing here?" and "He doesn't belong here," are common refrains for the most challenging discipline cases, even, or sometimes especially, in magnet schools.

The often single parent of such a child, likely facing many life challenges of his or her own, begins to hear the drumbeat and understands that support for his or her child is dwindling. Repeated suspensions cause the student to fall further and further behind academically (Rumberger & Larsen, 1998). Failure does not endear parents nor students to a school. The parent, sometimes convinced that the school has handled the discipline wrongly, decides that it is time for the child to get a "fresh start" in another school in which the conflicts of the old setting do not exist.

The circularity of mobility comes about when the same problems manifest themselves in the new school as well. The problems don't get solved by transferring because what the child needs - stability - is moving in the opposite direction from what the child needs. In addition, emotional, family or housing problems that may exist are not being solved by the school. So the child transfers again, and the cycle continues.

Ted Sizer's (2002) Coalition of Essential Schools has documented and developed the concept of community building in schools. "Teaching and learning should be personalized to the maximum feasible extent." is the fourth tenet of the Coalition's 10 Common Principle. The Coalition models teachers in a coaching mode, not deliverers of instructional services. This kind of learning is designed to benefit all students, but is especially important to high-risk students such as those that are highly mobile (Franke et al., 2003). Both the child and parent need to feel connected to the school in order to fully embrace and participate in its possibilities.

Creative and positive solutions to discipline must replace rejection-based discipline. Administrators must agree or be taught that they are not to "trade" problem children around. This practice, known as "social adjustment," should be replaced by a new mantra: "The student I know, however problematic, is better than the one I don't know" or "You keep your troublemakers and I'll keep mine." Clearly these "troublemakers'" behavior only becomes worse with multiple transfers. Restrictions on transfers must have the support of the central administration, and principals must instruct their staffs to stop talking about "getting rid of" kids that don't fit the norm.

Restrictive rules on transfer are bound to be met with opposition from several fronts. Principals themselves will not appreciate reduced flexibility, although many might appreciate the ability to set and hold registration deadlines. Parents who don't plan ahead are sure to knock loudly on the door of their school of choice after the deadlines and demand access. But setting these strict rules is the only way to put a stop to massive transferring at will, essentially an unsound educational practice. Urban schools and districts have not found themselves in a high enough position of credibility to demand much back from parents and the public, so a few threats to go to the press or the school board generally gets an aggressive parent demanding what he or she wants.

Highly mobile students don't need a separate process of being recognized and cataloged. They just need to land in a school that will care about them as people.

Schools need records and transfer protocols that ensure that records are moved immediately with the student upon transfer, including IEPs, which are special needs records. While improving the use of technology in the sometimes archaic records rooms of city schools would help, schools and districts cannot afford to wait until such proposals can be funded to improve the transfer of records.

Qualitative Change

It is not enough to institute new procedures in high mobility schools and districts. Unsuccessful urban schools do that frequently, to little avail. But combined with the personalization strategies of the Coalition, for example, a better learning climate could result. Teachers must learn to put across a welcoming and positive tone and demeanor, not just to know their subjects. Secondary teachers in particular, who are not trained in "whole child" concepts, must begin to embrace the important community-building role that they can play.

Future Research

Districts and schools that are truly data-driven and that aggressively set about to reduce mobility and mitigate its effects are more likely to see progress on the NCLB/ODE accountability measures. While this work will require new data calculation and structural changes, it may be less expensive than solutions that require new textbooks, extensive teacher training, or curriculum development. Urban school officials need exposure to mobility research and best practices in order to take the issue seriously and promote solutions. Creative policy development is essential if districts are to harness the power of stability for school success, in terms of authentic learning as well as for test scores.

Future research in Ohio's urban districts must examine the links between mobility and a number of variables, such as graduation rates, specific test scores, AYP, and specific ethnic groups.

Mobility data from other states and their ranking systems should be compared to these Ohio results to determine if some states have constructed accountability formulas that do not show the likelihood of high mobility schools ranking at the bottom of the scale.

Tools for schools must be developed so that schools and districts that do recognize the significance of mobility can undertake coordinated efforts to combat it. These efforts must be identified, documented, and measured, to establish which practices actually mitigate negative effects.

Finally, the complicated relationship between ethnicity, socioeconomic status, and mobility needs further exploration to determine levels of mobility that do or do not compound the effects of these variables on achievement.

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