This study examined relationships between schools' efforts to involve families in their children's education and student performance on standardized achievement tests in the Baltimore schools. Data gathered by the National Network of Partnership Schools was combined with those collected by the state for the mandated Maryland School Performance Assessment Program (MSPAP). Complete data were available from 78 schools for third graders and from 77 schools for fifth graders. Findings indicated that Baltimore schools rated their partnership programs between fair and good and that they implemented just under 4 of the 5 measured characteristics of a well-implemented partnership program. Program quality was strongly related to program implementation as well as the degree to which the school met the challenges associated with the six types of involvement. No relationship was found between program quality or program implementation and achievement test performance. However, mobility was negatively related to the percentage of third and fifth graders who scored satisfactory or above on the MSPAP. Schools that better met the challenges of involving all of the students' families had a larger portion of their third graders score satisfactory or above in reading, writing, math, science, and social studies and a larger portion of their fifth graders score satisfactory or above in science and social studies. (Contains 26 references and 5 tables.) (Author/KB)
Exploring School-Family-Community Partnerships and Achievement in Baltimore City Elementary Schools

By

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One of the most widely held beliefs in education is that parents are vital to the academic success of their children. The belief that all parents should actively participate in the education their children has been supported by decades of research connecting students' home life and parental involvement in education to achievement (Fehrmann, Keith, & Reimers, 1987; Henderson, 1986; Muller, 1993; Marjoribanks, 1979, Steinberg, Lamborn, Dornbusch, & Darling, 1992; Stevenson & Baker, 1986). Parent involvement in education need not occur solely because of background or beliefs. Studies have shown that parents respond to teacher encouragement and requests to become involved in their children's education (Ames, de Stefano, Watkins, & Sheldon, 1995; Balli, Wedman, & Demo 1998; Dauber & Epstein, 1993; Simon, 2000; Van Voorhis, 2000). As a result, schools across the county are reaching out to families with the hopes that these efforts translate into higher student achievement. Given the positive association between parent involvement and student achievement, schools that do more to encourage parent involvement might be expected to have higher rates of achievement among their students.

The present study draws upon the work of Joyce Epstein, who has conceptualized school, home and community environments as separate "spheres of influence", that can impact students differently depending on the degree to which they overlap (Epstein, 1995; Epstein, Clark, Salinas, & Sanders, 1987). According to Epstein, schools can foster greater overlap by implementing activities across six types of school, family, and community partnership: (1) parenting – helping all families establish supportive home environments for children; (2) communicating – establishing two-way exchanges about
school programs and children's progress; (3) volunteering – recruiting and organizing parent help at school, home, or other locations; (4) learning at home – providing information and ideas to families about how to help students with homework and other curriculum-related materials; (5) decision making – having parents from all backgrounds serve as representatives and leaders on school committees; and (6) collaborating with the community – identifying and integrating resources and services from the community to strengthen school programs. Schools that promote involvement across all six types of involvement can create greater overlap among school, family, and community spheres of influence, and provide greater opportunities for student achievement and learning.

Initiated in 1996, based on research in collaboration with Baltimore City Public Schools, Epstein and her colleagues developed the National Network of Partnership Schools (NNPS) to work with schools in developing comprehensive programs of school-family-community partnerships (Sanders & Epstein, 2000). NNPS helps schools, school districts, and states develop leadership structures that support the establishment of school-family-community partnership programs.

Early studies with a small sample of NNPS schools showed that the quality of a school’s partnership program was related to student outcomes such as achievement on standardized tests, attendance, and school safety (Epstein, Clark, Salinas, & Sanders, 1997; Sanders, 1998). However, other research on parent involvement has shown that schools’ efforts to facilitate parent involvement have the potential to create greater inequities in education, rather than lessen them. For example, Laraeu (1989), showed that students from middle-class, educated families are advantaged by school-family relationships as compared to children from working-class families. Schools working to
improve the education of their students through the development of partnerships much pay careful attention to the way involvement activities might affect families differently.

Recognizing the potential for inequity, NNPS encourages schools to meet specific challenges associated with involving all families in their children’s education. Table 1 lists eight challenges, each associated with one type of involvement (Epstein, 1995; Epstein, Coates, Salinas, Sanders, & Simon, 1997). For example, schools are encouraged to develop communication strategies through which messages can travel both from school-to-home and from home-to-school. Also, effective partnership programs include parent leaders from all racial, ethnic, and socioeconomic groups in decision-making and parent advisory councils. The degree to which a school meets the challenges of school, family, and community partnerships is an important indication of program quality.

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Studies have also shown that the quality of a program can be assessed according to how it is implemented at the school and among the school personnel. Research on NNPS schools have shown that a well-implemented program requires an Action Team for Partnership, self-evaluation, coordinated planning, activities for all six types of involvement, and the reporting of activities to other school committees (Epstein, 1995; Sanders 1999; Sanders & Epstein, 2000). Schools that have conducted these activities tend to show stronger and more effective programs of school, family, and community partnerships.

Research on school-family-community programs have shown several endogenous and exogenous variables associated with program quality and implementation. Overall
quality and implementation of school-family-community partnership programs have been associated with the amount of experience (number of years) a school has been working to develop their partnership program, adequacy of funding, and support from the school community (Sanders, 1999). In addition, support from the district and state offices of education have been associated with better implementation and quality of school programs (Sanders, Sheldon, Williams, & Clark, 2001). The quality and implementation of schools’ partnership programs, therefore, are dependent upon the actions of school personnel, as well as support from the districts and states in which these schools are located.

Whether or not school-wide programs to involve families and communities is associated with student outcomes remains largely unexplored. Research on schools working to develop comprehensive programs of school-family-community partnerships suggest that implementation of targeted activities is associated with improvements in student attendance and math achievement from one year to the next (Epstein & Sheldon, 2000; in preparation). These studies, however, are limited by small samples and rely on self-report methods of data collection. Larger studies are needed that combine independently collected data that enable an examination of the relationship between school programs for partnership and student outcomes.

The present study combined schools’ reports of their school-family-community partnership program with achievement data collected by the State of Maryland. In doing so, the following questions were examined: (1) Is there a relationship between schools’ efforts to involve all families in their children’s education and student performance on standardized achievement measures, and (2) Does combining school performance data
with data about the general partnership activities at a school appear to be appropriate and useful method for assessing the impact of school’s partnership program on students?

METHOD

Sample and Procedure

In the present study, data gathered by NNPS were combined with school-level achievement data for public elementary schools located in Baltimore City. Data collected by NNPS used surveys (UPDATE) asking school leaders to report on the quality and progress of school’s partnership program. Schools in NNPS are required to return UPDATE in order to renew their membership in the organization.

Achievement data consisted of results from the mandated Maryland School Performance Assessment Program assessment (MSPAP). MSPAP data was gathered from the State of Maryland’s website. This study combined the two data sets in order to explore the relationship between school-wide partnership programs and school-levels of student achievement. Both 1999 MSPAP and 1999 UPDATE data were available for eighty-four schools.

The MSPAP assessment is a performance-based, criteria-referenced test that is one of the longest-running statewide assessments. According to Maryland’s State Department of Education, “MSPAP measures how well students relate and use knowledge from different subject areas and how well they apply what they have learned.

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1 Program leaders from each school are instructed to complete the UPDATE surveys. A large majority of the surveys (86%) were completed through the collaboration of two or more people working on school, family, and community partnerships at the school. Approximately half of the surveys were either entirely or partially completed by the school principal, assistant principal, or another school administrator. Almost three-quarters of the surveys were completed with the help of teachers, and almost half of the UPDATE surveys were completed with the help of a parent or parent liaison.

2 Maryland law requires that all third, fifth, and eighth graders take the MSPAP.
to solve real world problems" (www.msde.state.md.us). Student performance on MSPAP in 1999 was examined as the dependent variable as the test has become a primary indicator of school performance in Maryland, in spite of its controversial nature (Bowler, November 2000).

Variables

All of the data collected represent school level measures. Data pertaining to the student body of each school (background characteristics and MSPAP performance) were gathered by the State of Maryland. Information about each school's partnership program was collected by NNPS.

Three background variables were used as covariates to help account for school performance on MSPAP. These contextual variables include school size, mobility, and percentage of students who receive free- or reduced-price lunch.

Achievement test performance was measured using the percentage of third and fifth grade students at a school that scored "satisfactory or above" on the MSPAP. Levels of MSPAP achievement were examined across six subject matters: Reading, Writing, Language Usage, Math, Science, and Social Studies.

Overall program quality ratings were assessed on UPDATE by asking schools to rate their program on a 6-point scale. Each rating was accompanied by an in-depth description of the school and program. The ratings included: "Not yet started," "Start-up Program," "Fair/Average Program," "Good Program," "Very Good Program," and "Excellent Program." A "fair" program is described as, "An Action Team was formed and a One Year Action Plan was written for 1998-99. A few activities were implemented for some of the six types of involvement. School's program meets a few challenges to
include all families. Several teachers involve families at several grade levels. Some teachers, parents, and students know our school is working to improve school, family, and community partnerships, and some know that our school is a member of the National Network of Partnership Schools.”

The extent to which schools implemented their partnership program was assessed using a five-item scale, based on past research about quality partnership programs. Indicators of a well-implemented program include: (1) a written one-year action plan, (2) implementing partnership practices for each of the six types of involvement, (3) regular action team meetings, (4) program evaluation, and (5) reporting progress on their partnerships to their school improvement team or council (Sanders & Epstein, 2000; Sanders, Sheldon, Williams, & Clark, 2001). This implementation measure represents the sum of five “yes/no” items, asking schools whether or not they conducted each activity. Each item was coded 1 for “yes” and 0 for “no.”

The extent to which programs were meeting the challenges associated with school-family-community partnerships was assessed by taking the sum of eight, 3-point items (See Table 1). Schools indicated whether they were: “not yet working on this challenge,” “actively working on this challenge,” or “has met this challenge.” Higher scores represent schools that have more completely met all eight challenges associated with Epstein’s six types of involvement.

RESULTS

The state of Maryland provided achievement data on third- and fifth-graders’ performance for 113 schools. As indicated on Table 2, Baltimore schools generally
performed poorly on MSPAP. The average percentage of 3rd grade students at a school that scored satisfactory or higher on MSPAP ranged from 12.75% (Reading) to 24.99% (Writing). Fifth grade students performed similarly. The percentage of fifth graders at a school who scored satisfactory or higher ranged from 15.52% (Writing) to 24.48% (Language Usage).

Data about school-family-community partnerships were obtained from 84 Baltimore schools. Complete data for third graders were available from 78 schools, 77 schools had complete fifth grade data. Analyses began by comparing schools that returned UPDATE with those that did not. Pairwise t-test analyses indicate that the two groups of schools did not differ on any of the background variables (Table 2). Schools that returned UPDATE, however, had a larger percentage of students who scored satisfactory or above on three achievement tests; third grade Writing ($t = 2.21, p \leq .03$), third grade Social Studies ($t = 2.10, p \leq .04$), and fifth grade Math ($t = 2.24, p \leq .03$).

Overall, the Baltimore elementary schools with UPDATE data appear to be representative of schools that did not return a survey to the National Network of Partnership Schools.

__________________________
insert Table 2 here
__________________________

On average, Baltimore schools rated their partnership programs between “fair” and “good” (3.89), and reported that they implemented just under 4 (3.75) of the 5 measured characteristics of a well-implemented partnership programs. Schools also reported that they were actively working to meet the eight challenges of school-family-community partnerships. Across all eight challenges, the average score for this measure
was 17.72. In addition to the mean and standard deviation for each measure, Table 3 shows that the general measure of program quality is strongly related to program implementation \((r = .453, p \leq .001)\), as well as the degree to which schools are meeting the challenges associated with the six types of involvement \((r = .482, p \leq .001)\). These latter two variables are related to one another, although not as strongly \((r = .287, p < .009)\)

Multiple regression analyses were conducted in order to investigate whether or not the quality of schools' partnership programs predicted MSPAP achievement. Multiple regression models using program quality and program implementation, separately, indicated no relationship between these variables and achievement test performance. The degree to which schools reported they were meeting the challenges, however, did predict performance on MSPAP across subject matter and grade level. These analyses are discussed in the next section.

Table 4 indicates that, across all of the models predicting third grade achievement test performance, mobility was negatively associated with the percentage of students who scored satisfactory or above. Schools with more students entering and leaving after the school year began tended to have a smaller percentage of students who scored satisfactory or higher on all MSPAP tests. In no case was the number of students enrolled at a school associated with student performance. Table 4 also shows that schools who better met the challenges of involving all of their students' families tended to have a larger portion of their third grade students score satisfactory or above in
Reading ($\beta = .245, p \leq .011$), Writing ($\beta = -.258, p \leq .013$), Math ($\beta = .239, p \leq .031$), Science ($\beta = .267, p \leq .014$), and Social Studies ($\beta = .304, p \leq .004$). Across subject matter, the models varied in their ability to predict school performance on MSPAP, ranging from 15% of the variance in Math to 36% of the variance in Reading.

Analyses predicting school level achievement with fifth graders was less consistent than analyses of third grade performance. Similar to the previous analyses, mobility was negatively associated with the percentage of fifth graders who met or exceeded satisfactory levels of MSPAP performance. Also, as shown in Table 5, the extent to which a school met all eight challenges was related to the percentage of students that scored satisfactory or above on the MSPAP Science ($\beta = .237, p \leq .031$) and Social Studies tests ($\beta = .219, p \leq .033$). Meeting the challenges help explain 17% of the variation in school performance for Science and 28% of the variation in Social Studies achievement.

DISCUSSION

In general, research on parent involvement has focused largely on two areas. One focus has been on family activities, how involvement varies across families and whether it predicts student outcomes such as achievement (Catsambis & Garland, 1997; Hoover-Dempsey & Sandler, 1997; Lee, 1994; Muller, 1993; Simon, 2000; Stevenson & Baker,
1986). The second major focus of parent involvement research has been on teachers' activities and whether teachers' efforts affect parent involvement and/or student outcomes (Ames et. al., 1995; Dauber & Epstein, 1993; Epstein, 1991; Epstein & Dauber, 1991). In contrast to these approaches, the present study explored whether whole-school efforts to establish connections with families and the community predict student achievement.

Findings from the multiple regression analyses suggest that the more strongly schools reach out to all families and establish working partnerships, the more likely students are to perform satisfactorily on achievement tests, especially in early elementary grades. In all but one subject matter area, schools that were more strongly meeting challenges associated with parent involvement tended to have a greater percentage of third graders who scored satisfactory or above on MSPAP. In fifth grade, this pattern was seen only in Science and Social Studies.

These findings suggest that it is important for schools to reach out to all families, especially the ones that more traditional involvement activities may not accommodate. Not all parents are available to visit the school, and finding methods to include these parents in school activities appears predict higher levels of student achievement. For example, schools that develop ways to get information shared at parents workshops to families that could not attend, are helping a much wider range of families. All parents want their children to succeed in school (Epstein, 1995), the key is for schools to help those families for whom involvement may be more difficult.
Implications for Partnership Research

The present study is just one step of a larger attempt to connect school-family-community partnership activities with specific student outcomes. Epstein and Sanders (2000) have suggested that one of the most persistent over-simplifications for researchers, policy-makers, and educators is the idea that any family or community involvement leads to all good things for students, parents, and schools. The findings here suggest the need for researchers to consider carefully what measures they are using to assess school programs for partnership and understand why these measures should be associated with student outcomes.

The fact that the measure of program quality and program implementation did not predict student achievement, while the challenges scale did, suggests the importance of using measures that specify school outreach when examining the effects of partnership programs. It is important for research on parent involvement to examine the effects of implementing practices targeted to improve specific student outcomes (i.e., Math tutors in the classroom) on those outcomes (Math Achievement). Other research conducted by NNPS has begun this process and found that the use of targeted practices can improve student outcomes such as attendance and math achievement (Epstein & Sheldon, 2000; in preparation). Together the research emphasizes the importance of measuring schools' outreach, and the extent to which these efforts try to connect with all families.

Limitations

The present study established a positive relationship between school programs to involve families and communities in children's education and achievement on standardized tests. This connection was shown in large urban schools, with high levels of
poverty among families and very few students succeeding according to state standards. However, because the data is cross-sectional causal associations between school programs and student achievement cannot be assumed. Longitudinal data is needed to assess whether schools’ partnership programs can improve student performance. Also, the study could not account for any school variables beyond the partnership program and contextual factors. Future studies also require information about classroom context in order to help account for the impact instruction has on student achievement.

Future studies might also use more specific measures of family and community involvement activities, and connect the usage of these activities with alternative measures of student achievement. Standardized test performance is just one student outcome. Other outcomes such as grades, homework completion, daily attendance, behavioral referrals, or even involvement in extracurricular activities are all possible school-level indicators that can be used to assess the range of effects school partnership programs might have.

The next step connecting UPDATE data to state-collected achievement data is to broaden the number of schools and locations from which they are drawn. The low levels of school performance on MSPAP in Baltimore resulted in little relative variability to be predicted, making relationships harder to identify. Future studies involving schools from across Maryland might provide greater variability in school performance levels. Such data would be better suited for longitudinal analyses.

Conclusions

This study connects schools’ efforts to involve families and communities in children’s education with achievement outcomes. By using Baltimore City elementary
schools, this study suggests that school-family-community partnerships can support student achievement in some of the most challenging environments. The findings also indicate that the connection between school efforts to create partnerships and student outcomes may not be easily achieved. The data presented here suggest that schools need to reach out to all families and be thoughtful in recognizing barriers to parental involvement. This means addressing significant challenges that often act as barriers to widespread family involvement in large urban areas.

The analyses also suggest that schools' efforts to involve parents may have more of an impact on students in the lower elementary grades. In the third grade, partnership efforts were related to satisfactory achievement in all subjects except Language Usage. With the fifth grade cohort, school partnership programs predicted achievement in Science and Social Studies. The role that families play in student achievement may change as students move through elementary school, and the implementation of partnership programs and activities need to be mindful of these changes. Understanding how the family-school relationship evolves across schooling, and during the course of elementary school, is another area for future research to examine.

Finally, this study also has implications for how researchers might study the effects of parent involvement, or other programs in schools. The more general measures of program quality and implementation did not predict student outcomes, while measures that asked about specific school practices did. This suggests that researchers interested in evaluating the impact of programs need to understand the specific challenges and goals of these programs, and use these as measures of quality. The program implementation indicators, for example, were activities that revealed how the program
operated at the school. Implementation and general quality, while associated with the challenges, did not directly measure the degree to which schools were trying to connect with families and the community.

More than the existence of a partnership program, schools need to have a program that actively confronts the challenges of involving the most “at-risk” students and their families. As this data suggest, when efforts are made to create greater overlap between schools, families, and the community, by and large, students benefit. Ultimately, this is the goal of all school programs.
References


Muller, C. (1993). Parent involvement and academic achievement: An analysis of family resources available to the child. In B. Schneider & J. S. Coleman (Eds.), *Parents, their Children, and Schools* (pp.77-114). Westview: Boulder, CO.


<table>
<thead>
<tr>
<th>Involvement</th>
<th>Definition</th>
<th>Challenge(s) Associated with Involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1: Parenting</strong></td>
<td>Help all families establish home environments to support children as students.</td>
<td>Get information to parents/families who cannot come to workshops and meetings.</td>
</tr>
<tr>
<td><strong>Type 2: Communication</strong></td>
<td>Design effective forms of communication about school programs and children's progress.</td>
<td>Communicate clearly with all families (e.g., attention to reading levels, English translation, size of print, etc.). Establish 2-way communication channels so that families have several ways to ask questions, obtain information, give input.</td>
</tr>
<tr>
<td><strong>Type 3: Volunteering</strong></td>
<td>Recruit and organize help and support from families.</td>
<td>Invite and provide opportunities for volunteers to work.</td>
</tr>
<tr>
<td><strong>Type 4: Learning at Home</strong></td>
<td>Provide information and ideas to families about how to help students at home with homework and other curriculum-related activities, decisions, and planning.</td>
<td>Help teachers use interactive homework so that students can share what they are learning with family members.</td>
</tr>
<tr>
<td><strong>Type 5: Decision Making</strong></td>
<td>Include parents in school decisions, developing parent leaders and representatives.</td>
<td>Check that all groups of families (e.g., ethnic, socioeconomic, racial groups) are represented in leadership positions on the school council, committees, Action Team, and parent organization.</td>
</tr>
<tr>
<td><strong>Type 6: Community Collaboration</strong></td>
<td>Identify and integrate resources and services from the community to strengthen school programs, family practices, and student learning and development.</td>
<td>Use community resources to help enhance student learning. Develop ways for school, families, and students to contribute to the community.</td>
</tr>
</tbody>
</table>
Table 2: Inter-correlation Coefficients among School and Partnership Program Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Student enrollment</th>
<th>Mobility</th>
<th>% Free- and reduced-price lunch</th>
<th>Program Quality</th>
<th>Program Implementation</th>
<th>Meeting Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student enrollment</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility*</td>
<td>-.164</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>% Free- and reduced-price lunch</td>
<td>-.170</td>
<td>.355**</td>
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<td></td>
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<tr>
<td>Program Quality*</td>
<td>.085</td>
<td>-.102</td>
<td>-.111</td>
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<tr>
<td>Program Implementation</td>
<td>.164</td>
<td>-.114</td>
<td>-.135</td>
<td>.453***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting Challenges*</td>
<td>.014</td>
<td>-.159</td>
<td>-.054</td>
<td>.482***</td>
<td>.287**</td>
<td></td>
</tr>
</tbody>
</table>

M          | 485.33            | .40      | 80.15                           | 3.83            | 3.69                   | 17.82              |
SD         | 214.98            | .13      | 18.48                           | 1.10            | 1.23                   | 3.60               |

* p ≤ .05, ** p ≤ .01, *** p ≤ .001
n = 84 schools, *n = 83 schools
Table 3: Comparing the Percentage of Students Scoring Satisfactory on 1999 MSPAP Among Schools With And Without a NNPS Survey

<table>
<thead>
<tr>
<th>Background Variables</th>
<th>UPDATE</th>
<th>No UPDATE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student enrollment</td>
<td>485.33</td>
<td>458.50</td>
<td>187.14</td>
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<tr>
<td>Mobility</td>
<td>.40</td>
<td>.37</td>
<td>.12</td>
</tr>
<tr>
<td>% Free- and reduced-price lunch</td>
<td>80.15</td>
<td>80.51</td>
<td>14.12</td>
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</table>

<table>
<thead>
<tr>
<th>3rd Grade Achievement</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>16.77</td>
<td>13.85</td>
<td>8.95</td>
</tr>
<tr>
<td>Writing</td>
<td>26.61</td>
<td>20.99</td>
<td>10.40</td>
</tr>
<tr>
<td>Language Arts</td>
<td>25.18</td>
<td>21.68</td>
<td>10.04</td>
</tr>
<tr>
<td>Math</td>
<td>14.28</td>
<td>8.95</td>
<td>8.78</td>
</tr>
<tr>
<td>Science</td>
<td>14.53</td>
<td>10.12</td>
<td>8.13</td>
</tr>
<tr>
<td>Social Studies</td>
<td>17.70</td>
<td>11.68</td>
<td>10.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5th Grade Achievement</th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>16.12</td>
<td>15.47</td>
<td>9.12</td>
</tr>
<tr>
<td>Writing</td>
<td>15.95</td>
<td>14.80</td>
<td>7.62</td>
</tr>
<tr>
<td>Language Arts</td>
<td>25.11</td>
<td>23.24</td>
<td>10.24</td>
</tr>
<tr>
<td>Math</td>
<td>18.65</td>
<td>11.77</td>
<td>8.53</td>
</tr>
<tr>
<td>Science</td>
<td>22.23</td>
<td>17.43</td>
<td>10.68</td>
</tr>
<tr>
<td>Social Studies</td>
<td>17.74</td>
<td>15.65</td>
<td>8.93</td>
</tr>
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</table>

N= 113 Schools
* p ≤ .05
### Table 4: Percentage of 3rd Grade Students Scoring Satisfactory or Better on 1999 MSPAP

<table>
<thead>
<tr>
<th>Variables</th>
<th>Reading</th>
<th>Writing</th>
<th>Usage</th>
<th>Math</th>
<th>Science</th>
<th>Social Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Mobility</td>
<td>-.332**</td>
<td>-.245*</td>
<td>-.321**</td>
<td>-.247*</td>
<td>-.226+</td>
<td>-.300***</td>
</tr>
<tr>
<td>% Free Lunch</td>
<td>-.311**</td>
<td>-.263*</td>
<td>-.210+</td>
<td>-.060</td>
<td>-.150</td>
<td>-.160</td>
</tr>
<tr>
<td>School Size</td>
<td>-.071</td>
<td>-.104</td>
<td>-.100</td>
<td>-.060</td>
<td>-.102</td>
<td>-.086</td>
</tr>
<tr>
<td>Sum of Challenges</td>
<td>.245**</td>
<td>.258*</td>
<td>.174+</td>
<td>.239*</td>
<td>.267*</td>
<td>.304**</td>
</tr>
<tr>
<td>R² (Adj. R²)</td>
<td>.36 (.32)</td>
<td>.26 (.22)</td>
<td>.23 (.19)</td>
<td>.15 (.10)</td>
<td>.19 (.14)</td>
<td>.26 (.22)</td>
</tr>
</tbody>
</table>

N=78 Schools  
+p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

### Table 5: Percentage of 5th Grade Students Scoring Satisfactory or Better on 1999 MSPAP

<table>
<thead>
<tr>
<th>Variables</th>
<th>Reading</th>
<th>Writing</th>
<th>Usage</th>
<th>Math</th>
<th>Science</th>
<th>Social Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Mobility</td>
<td>-.337**</td>
<td>-.305**</td>
<td>-.435***</td>
<td>-.272*</td>
<td>-.278*</td>
<td>-.395***</td>
</tr>
<tr>
<td>% Free Lunch</td>
<td>-.111</td>
<td>-.250</td>
<td>-.139</td>
<td>.004</td>
<td>-.053</td>
<td>-.113</td>
</tr>
<tr>
<td>School Size</td>
<td>-.020</td>
<td>-.014</td>
<td>-.153</td>
<td>.000</td>
<td>-.026</td>
<td>-.002</td>
</tr>
<tr>
<td>Sum of Challenges</td>
<td>.139</td>
<td>.150</td>
<td>.137</td>
<td>.189+</td>
<td>.237*</td>
<td>.219*</td>
</tr>
<tr>
<td>R² (Adj. R²)</td>
<td>.18 (.14)</td>
<td>.25 (.21)</td>
<td>.27 (.26)</td>
<td>.13 (.08)</td>
<td>.17 (.12)</td>
<td>.28 (.24)</td>
</tr>
</tbody>
</table>

N= 77 Schools  
+p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
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