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## The Effect of Neighborhood Poverty on School Achievement and Behavior: A Study of Children in a Low-income Neighborhood School in Canada

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**ABSTRACT:** Research suggests that the effects of poverty on children are wide ranging. One area affected by poverty is school achievement and motivation to learn. As reading is fundamental to most uses of school performance, it is especially important to ensure that all children achieve adequate reading skills. In this study, a supplementary reading program was delivered to children living in low income families. It was hypothesized that extra reading practice would result in accelerated levels of reading. The results of this study showed reading improvement for both the experimental and control groups. Higher gains were noted, however, by grade one students assigned to the experimental groups. The data suggests that younger children make the greatest gains in reading when extra practice is provided.

**KEYWORDS:** literacy, poverty, child development, inner-city

Poverty threatens a wide range of child development, most critically school achievement and other academic-related behavior. American studies report that family poverty decreases IQ, verbal ability, and achievement scores of children from two to eight years old (Smith, Brooks-Gunn, & Klebanov, 1997) and that lower-income middle-school students scored lower on basic academic skills than higher-income students (Farkas, 1996). The Ontario Child Health Study in Canada found that welfare children had lower school performance than non-welfare students (Offord, Boyle, & Jones, 1987).

The harmful effect of family poverty is accentuated by neighborhoods with a concentration of low-income families (Sampson & Morenoff, 1997; Wilson, 1987). Neighborhood poverty exacerbated the effect of individual poverty through “collective socialization” (Jencks & Mayer, 1990; Wilson, 1987). For

example, persistent unemployment in the neighborhood may provide models of joblessness as normative (Wilson, 1995) and reduce children's motivation for school achievement (Albee & Gullotta, 1997). Research indeed found inner-city boys, grades two to eight, to have lower occupational and educational aspirations than counterparts living in affluent circumstances (Cook, Church, Ajanaku, Shadish, Kim, & Cohen, 1996). Schools in low-income neighborhoods will have a concentration of children in poverty who run the risk of having a lower level of school achievement and motivation for achievement.

Reading is fundamental to schooling and other skill areas (Wade, 1992). Retention and special education placement are largely determined by reading performance (Madden, Slavin, Karweit, Dolan, & Wasik, 1993). The inability to read is correlated with a number of social problems that plague society's youth, such as delinquency and teenage pregnancy (Madden et al., 1993). Unfortunately, poverty especially impedes children's literacy. A British study found that young children, aged four to eight years, from low socio-economic status families (SES) were behind children from higher SES in letter knowledge and other foundation literacy skills (Duncan & Seymour, 2000). Even as early as 48 months of age, many children from low SES showed lower levels of literacy concepts than their middle SES counterparts (Smith & Dixon, 1995). Poverty has been especially found to impair reading comprehension (Battistich, Solomon, Kim, Watson, & Schaps, 1995).

Intervention has been provided for children in economically disadvantaged homes centering on reading competence. In Canada, a reading program, "Success for All" was applied to "high poverty" elementary school students (Chambers, Abrami, & Morrison, 1998). By providing regular 90-minute tutoring of reading for students with reading difficulty, the program improved literacy skills. This program, however, targeted only on students with reading difficulty. Yet, as children from low-income homes in general require reading proficiency, all of them require enriched reading support. Success for All also required extensive training, which is often not possible in school today. A practical reading program for young children in low-income homes, which is easy to administer, is yet to be developed and tested. However, teachers often lack the time to provide extra reading to children. Reading assistant from outside such as university students may compensate this.

Notwithstanding the large body of research in the US on the effect of poverty on children, Canadian data are sparse. Systematic intervention to address the low reading levels of children in poverty or low-income homes is especially rare in Canada.

In this study, a supplementary reading program was delivered to young children living in low-income homes. The study asked: what is the effect of the intervention on children's reading skills? The study hypothesized that the intervention resulted in higher levels of reading skills.

## **Method**

### *Participants*

The participants were 68 students from grade one and two classes in a mid-size West-coast Canadian city with a population of 360,000. The children were divided into two groups: the reading group consisting of 32 (14 grade one and 18 grade two) and the control group consisting of 36 (14 grade one and 22 grade two students). There were 31 boys and 37 girls. The children were attending a school in a low-income neighborhood designated for special subsidies such as the free lunch. There were two children with an Asian and ten with the First Nations ethnicity, the rest being Caucasian.

### *Instrumentation*

Instruments to measure reading outcomes were administered individually to students at pre-test and post-test. The instruments included the following:

1. *PIAT-R/NU (the Peabody Individual Achievement Test-Revised)* (Markwardt; 1998). This test is an individually administered achievement test assessing six content areas. Only three subtests were administered presently: Reading Recognition, Reading Comprehension, and Spelling.
2. *Slosson Oral Reading Test* (Slosson, 1963). This brief test, given orally, assesses the ability to pronounce words at different levels of difficulty.

### *Procedure*

The participants were recruited from a school located in a low-income neighbourhood. The school, designated as an "inner city" school received a free lunch program from the provincial government. After the initial approval for the study by the school and the classroom teachers, letters informing the parents of the nature of the study were distributed. Following the written consent by parents, the study was carried out.

*Experimental Design*

A true experimental design (Campbell & Stanley, 1969) was applied with a pre- and post-test control group design. Through the random assignment, the group was divided into two sub-groups: experimental and control. The former received a supplementary reading program while the latter did not.

*Intervention: Supplementary Reading*

For most of the children the supplementary reading program occurred twice a week. These two, twenty-minute sessions were provided under the direction of a university student who held a teaching certificate. The group size ranged from two to four children. The smaller groups were designed for younger children and those with lower reading abilities. Two children with very low reading ability were grouped together for two, thirty-minute sessions per week. Two groups of more capable children meet once a week for thirty minutes.

*Reading Procedures*

The sessions were conducted by having individual students read a short selection from the story. On occasion, as in reading poetry, all the students read together. The students and teachers frequently read difficult passages together. Two major teaching procedures were used to guide the children's reading. First, guided reading included:

1. High frequency words - The teacher selected words from the passage that were important and the students were unfamiliar with. She taught the meaning and spelling of these words.
2. Introduce Book - The teacher provided a brief main idea statement about the book. She solicited the students' prior knowledge on the subject; then discussed and predicted the story line.
3. Guided Reading - The teacher guided the students through the story at their own pace. Students did all the reading.
4. Skills in Context - The teacher discussed one skill that was evident in the story. For example, word endings (-ing), word families (tough, rough), rhyme (can, man).

Second, while reading a story, the teacher often stopped and asked the students a question about the story. Children were asked to predict what will happen next or to reflect on what had happened.

Table 1  
Mean Grade Equivalents in Aspects of Reading by the Total Group at the Pre-and Post-test

Variable	Group					
	Pre-test	Experimental Post-test	Difference	Pre-test	Control Post-test	Difference
Reading Recognition	1.45	2.35	.90	1.90	2.40	.50
Reading Comprehension	1.45	2.35	.90	1.95	2.60	.65
Spelling	1.45	2.20	.75	2.00	2.50	.50
Slosson Oral Reading	1.35	2.90	1.55	1.95	3.30	1.35

## Results

The results of the reading tests are presented in grade equivalents. Table 1 shows average grade equivalents in different areas of reading by the total group: experimental and control group together. The areas included: reading recognition, reading comprehension, spelling, and word recognition as measured by the Slosson Oral Reading Test. As shown, at pre-test, the experimental group were at a lower reading level in all areas of reading than were the control group, the difference being about half a grade. The control group was clearly reading at their grade level while the experimental was not. At post-test, however, the experimental group not only achieved their grade level in reading, but also showed greater improvement in all aspects of reading than did the control group.

To examine grade differences, average reading scores as represented by grade equivalents are separated. The results for grade one are presented in Table 2 and results for grade two are presented in Table 3.

Table 2 and 3 show that for the grade one group, the experimental group, although initially scored lower than the control group in all areas of reading at pre-test, surpassed the control group in all areas at post-test. The group's gains were clearly greater than those of the control group. Table 3 shows that differences in the gain between the two groups of grade two students were less apparent, although both groups showed growth in measured reading skills. It is, how-

Table 2  
Mean Grade Equivalents in Aspects of Reading of Grade 1 by Group at the Pre-and Post-test

Variable	Group					
	Pre-test	Experimental Post-test	Differ- ence	Pre- test	Control Post-test	Difference
Reading Recognition	1.0	2.2	1.2	1.3	1.9	.6
Reading Comprehension	.9	2.4	1.5	1.4	2.1	.7
Spelling	1.1	2.0	.9	1.3	1.9	.6
Slosson Oral Reading	.7	2.7	2.0	1.5	2.4	.9

ever, noted that the experimental group was behind the control group in all aspects of reading at pre-test but was reading at above the grade level at post-test, although their reading levels remained lower than the control group.

### Discussion

This pilot study examined the effect of a reading program as a method of intervention for young children in a school located in a low-income neighbourhood. A four month supplementary reading program was provided twice a week, each with 20 to 30 minutes. A university reading assistant guided children in reading in small groups and provided instruction in reading as needed. Comparison was made with a group who received no intervention. The results show apparent gains in reading in both groups. Greater gains appeared to take place in the experimental group. Further, the gain in the experimental group, however, appeared to be largely accounted for by the grade one group who made clearly large gains of one grade in all aspects of reading.

Of special significance is the observation that although children in the study were generally reading at their grade level despite their low-income status, for grade one children the intervention raised their reading to above their grade one level.

Table 3  
Mean Grade Equivalent in Aspects of Reading of Grade 2 by Group at the Pre and Post-test

Variable	Group					
	Pre-test	Experimental Post-test	Differ- ence	Pre-test	Control Post-test	Difference
Reading Recognition	1.9	2.5	.6	2.5	2.9	.4
Reading Comprehension	2.0	2.3	.3	2.5	3.1	.6
Spelling	1.8	2.4	.6	2.7	3.1	.4
Slosson Oral Reading	2.0	3.1	1.1	2.4	4.2	1.8

The preliminary results thus suggest that supplementary reading, albeit limited to only 40–60 minutes per week, was effective in increasing the reading skill of grade one and two children in low-income homes. The study especially alludes to the greater effectiveness of intervention at a younger age, such as grade one. The results suggest the importance of early intervention for improving reading for children in low-income homes. Schools thus need to consider the provision of supplementary or additional reading programs for these children outside their regular class instruction. The effect should further be evaluated.

This study has provided an empirical study of the effect of intervention on the reading competency of young children in low-income families. However, the small sample size calls for further testing of the results and the intervention strategy. Other models of intervention can also be designed and tested by future research. Policy makers must support such research especially in view of the finding that the younger the children are, the more effective the intervention seems to be.

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