THE READING ACHIEVEMENTS OF PRIMARY SCHOOL PUPILS FROM DISADVANTAGED BACKGROUNDS

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One of the most widely acknowledged correlates of educational disadvantage is poor scholastic achievement. The purpose of the present paper is to review and summarize what is known about the reading achievements of Irish primary school pupils from disadvantaged backgrounds using data extracted from a variety of studies including national assessments, test standardizations, and programme evaluations. The findings indicate that the reading achievements of pupils in schools designated as disadvantaged are consistently below those of pupils in non-designated schools and test standardization samples. Literacy problems are particularly serious in schools serving concentrations of pupils from disadvantaged backgrounds.

Despite the fact that the term educational disadvantage has become part of the vocabulary of educators and policy-makers, there have been few attempts to define it. A broad definition, which attempted to encapsulate its complex nature, suggests that children may be considered to be disadvantaged if, for sociocultural reasons, they enter the school system with knowledge, skills, and attitudes which make adjustment difficult and impede learning (Passow, 1970). According to this view, disadvantage results from the interplay of a variety of distal factors in the social and economic conditions which characterize certain communities (e.g., poverty and its correlates, such as unemployment) and proximal factors located in the home and in the school (e.g., parent and teacher expectations) (Kellaghan, Weir, Ó hUallacháin, & Morgan, 1995).

THE RELATIONSHIP BETWEEN EDUCATIONAL DISADVANTAGE AND SCHOLASTIC ACHIEVEMENT

School performance (as reflected in participation and achievement) may be regarded as the most significant indicator of educational disadvantage as far as the educational system is concerned (Kellaghan et al., 1995). The relationship between socioeconomic status and school performance has been widely acknowledged and was highlighted in documentation accompanying the introduction of the initiative of the Department of Education and Science (2001)

aimed at pupils living in disadvantaged areas – Giving Children an Even Break – in which it is stated that

> There is a strong link between poor educational achievement and socioeconomic deprivation. Consequently, providing supports for young people who are at risk of educational disadvantage and early school leaving and their families is a priority issue for the Government... (p.3).

Many studies confirm a relationship between the socioeconomic environment in which a child grows up and his or her educational achievements (e.g., Driessen & Jungbluth, 1994; Driessen & Sleegers, 2000). A study by Thorndike (1973) found that socioeconomic status (based on pupils' reports of fathers' occupation, and fathers' and mothers' education) and availability of reading resources in the home were the two most effective predictors of reading achievement among a set of variables related to school characteristics and type and pupils' home and community backgrounds. White's (1982) meta-analysis of 101 studies in which the relationship between socioeconomic status and various measures of scholastic achievement was investigated led to the conclusion that, in order of importance, household income, followed by parents' occupation and parents' education, related most closely to achievement.

While acknowledging the contribution of distal factors such as socioeconomic status in explaining variance in scholastic achievement, much of the variance remains unexplained. Many investigators have highlighted the importance of factors that are more proximal in nature and relate to the individual child's experiences in the home and school. For example, measures of home organization, parental expectations, and parent-child interaction, which comprise the 'atmosphere' of the home, have been found to correlate much more highly with scholastic achievement than does any single indicator or combination of indicators of socioeconomic status (Kellaghan, 1994; Kellaghan, Sloane, Alvarez, & Bloom, 1993; White, 1982). The school environment itself may contribute to disadvantage if the language used in the classroom is unfamiliar to children (Labov, 1972). Disadvantage may also arise if teachers have low expectations of children, or set undemanding standards (Lumsden, 1997).

Regardless of the determinants of disadvantage, the principal effect of disadvantage is to make adjustment to school difficult, which, in turn, results in impoverished educational performance. The effects of disadvantage manifest themselves at an early age, and persist through school. The problems experienced by children from disadvantaged backgrounds extend far beyond poor performance on tests of achievement. Eventually, the student from a disadvantaged background is likely to leave school early, with poor (or no)

qualifications and poor employment prospects (Collins & Williams, 1998; Hannan, 1986).

In this paper, evidence relating to the reading achievements of Irish primary school pupils from disadvantaged backgrounds is reviewed. Data are extracted from seven studies: a study of the reading achievement of primary school leavers in Dublin's inner city; two sets of data from the standardization of the Drumcondra Primary Reading Tests, one for Level 1 and one for Level 2; the National Assessment of English Reading; the evaluation of Early Start; the IEA Pre-Primary Project; and the evaluation of the Breaking the Cycle Scheme in urban schools. While these studies were carried out for a diversity of reasons, they all provide data which make it possible to compare the reading achievements of pupils attending schools designated as disadvantaged with those of pupils in non-designated schools. Some of the studies provide data on gender differences in achievement.

MEASURES AIMED AT ADDRESSING EDUCATIONAL DISADVANTAGE IN IRELAND

At primary level, schemes to provide food, school books, clothing and footwear to children from poor backgrounds have been in existence in Ireland since early in the 20th century (NESC, 1993). Indeed, Ireland was one of the first countries in Europe to respond to more recent interest in the problem of disadvantage by setting up a preschool in an acutely disadvantaged area in Dublin in 1969 (Holland, 1979; Kellaghan, 1977). Since that time, various other forms of educational provision designed to address disadvantage have been made available throughout the education system.

In 1984, the Department of Education introduced a set of special measures to address the problems of disadvantage in selected primary schools in Dublin, Cork, and Limerick. The additional provision, which later became known as the Scheme of Assistance to Schools in Designated Areas of Disadvantage, initially included increased capitation grants for participating schools, as well as a dedicated grant for the development of home-school links. Later in the scheme, schools were also eligible for concessionary teaching posts. In the light of concern about the procedures used to identify schools that would benefit from the scheme, specific indicators to assist in the identification of schools were introduced in 1990. Schools were asked to supply information on the number of pupils in the school whose families were resident in local authority housing or non-permanent accommodation; held medical cards; and were in receipt of unemployment benefit or assistance under schemes administered by the Department of Social Welfare. The indicators were weighted and used in the

calculation of an index of disadvantage for each applicant school, and applicants were rank-ordered for consideration for inclusion in the scheme on the basis of the index. In this paper, when pupils are described as attending schools that are designated as disadvantaged, they were attending schools in this scheme. No further schools have been admitted to the scheme since 1996/97. In the 2000/2001 school year, 316 (10%) of 3,164 primary schools countrywide were designated as disadvantaged.

A more targeted approach to the problem of disadvantage in urban and rural areas was initiated by the Department of Education in 1996/97. The scheme, known as Breaking the Cycle, was introduced to 33 urban and 123 rural schools to assist them in addressing problems associated with catering for large numbers of pupils from disadvantaged backgrounds. Only schools that were already designated as disadvantaged were eligible to apply for inclusion in the urban dimension of the scheme. An index of disadvantage was computed for each school using a set of indicators based on characteristics of the home backgrounds of their pupils. Specifically, schools were asked to indicate the number of pupils in their reception classes: whose mother had not taken at least the Group or Intermediate Certificate Examination; whose father had not taken at least the Group or Intermediate Certificate Examination; who lived in a family in which the main breadwinner was unemployed for a year or more; who lived in a rented local authority house/flat; who lived in a family that held a medical card; who lived in a lone-parent household. The 33 schools which were ultimately selected for the urban dimension of the scheme consisted of the 25 top scorers on these indicators, plus eight partner (or associated) schools. As a group, schools selected for Breaking the Cycle had greater concentrations of pupils from disadvantaged backgrounds than schools designated as disadvantaged under the older scheme. The scheme itself provides for reduced class size at junior level; grants for the purchase of books, teaching materials, and equipment; enhanced capitation grants; and targeted incareer development programmes for teachers.

While there are other initiatives aimed at addressing disadvantage at primary level (e.g., the Home-School-Community Liaison Scheme, the School Completion Programme, Giving Children an Even Break), the Scheme of Assistance to Schools in Designated Areas of Disadvantage and Breaking the Cycle were described in detail because they are important in the context of the present paper. With the exception of the first study to be described (which pre-dates the designation of schools as 'disadvantaged'), the following review of studies compares the literacy achievements of pupils in schools participating in these schemes with those of pupils attending schools that are not, and with the achievements of pupils in national samples.

METHODS OF COMPARING THE RESULTS OF STUDIES

Due to methodological differences between the studies (e.g., in the reading tests used), differences in pupils' achievements are described, where appropriate and where possible, by reference to a number of measures including mean scores, standard deviation units, percentages of low-scoring pupils, and effect size. Effect size is often used as a common metric in the comparison of results from different studies since it provides an indication of the degree of separation or overlap between or among populations due to an independent variable, and is not affected by sample size. Effect size is usually used in comparing the results of different experimental procedures in a particular area of inquiry, but in the present review, it is used as a measure of the differences between the achievements of pupils attending designated and non-designated schools, or between pupils in designated schools and an appropriate norm group. The effect size (d) is the standardized mean difference between two groups and is computed by subtracting the mean of one group (pupils in non-designated schools, or a normative group in a test standardization) from the mean of a comparative group (pupils attending schools designated as disadvantaged), and dividing by a standard deviation. When comparisons involve norm groups, the standard deviation of that group is used in the computation of effect size. In comparisons of the achievements of pupils in designated and non-designated schools, effect size is computed using the pooled standard deviation of the groups. An effect size of .2 is generally considered to be small, .5 medium, and .8 large (Cohen, 1988). Cohen noted that an effect size of .2 corresponds to an overlap between individual cases in the populations of interest of about 85%, an effect size of .5 to an overlap of about 67%, and an effect size of .8 suggests an overlap of about 53 percent.

Where the data permit, the reading achievements of boys and girls are reported, but information on gender is available in only four of the seven studies described. It should be noted also that data on the performance of pupils in designated schools have been largely extracted from national surveys and evaluations. More precise estimates of achievement would be gained by administering tests of achievement to pupils in a larger number of designated schools. However, the data provide a broad indication of literacy levels in the samples of interest.

THE READING ACHIEVEMENT OF PRIMARY SCHOOL LEAVERS IN DUBLIN'S INNER CITY (1983)

A study in 1983 by Archer and O'Flaherty (1991) examined 6th class (typically 12- year olds) reading achievement levels in 36 primary schools in Dublin's inner city. While, at the time, the areas in which the schools were

located were recognized as areas where disadvantage was prevalent, the study
pre-dated the introduction of the Scheme of Assistance to Schools in Designated
Areas of Disadvantage. The test used to assess reading was the Drumcondra
Attainment Test (DAT) in English (Level III), a standardized test of Vocabulary,
Comprehension, Language, and Spelling (Educational Research Centre, 1976).
Table 1 presents test data from the study showing the percentage of pupils with

Table 1

Percentage of Inner-City 6th Class Pupils Scoring at Decile Points on the
DAT English Test, Level III

	% Scoring at Decile Level	
Decile	All Pupils (N=1,072)	Resident Pupils Only (N=891)
1st	5.8	4.5
2nd	10.1	6.8
3rd	8.8	8.7
4th	7.0	5.7
5th	9.8	10.3
6th	11.9	11.7
7th	10.7	10.3
8th	10.7	12.4
9th	13.3	14.8
10th	11.9	14.9

reading test scores falling into each decile. Two groups of pupils are
represented: pupils who resided in the inner city and attended school there, and
all pupils who attended school in the inner city regardless of place of residence.
On the basis of test norms, one would expect the scores of 10% of pupils to fall
into each decile. However, the data in Table 1 reveal that fewer pupils than
expected are represented in the upper four deciles, while more than expected are
represented in the lower five. This pattern is stronger among pupils who both
lived and attended school in the inner city.

THE STANDARDIZATION OF THE DRUMCONDRA PRIMARY READING TEST, LEVELS 1 AND 2 (1995)

The Drumcondra Primary Reading Test (DPRT) is a group-administered silent
reading test containing three subtests: Word Analysis, Reading Vocabulary, and
Reading Comprehension. A pupil's total test score is obtained by summing
his/her scores on all three subtests. Levels 1 and 2 of the test are designed for use

with primary school pupils in 1st and 2nd classes respectively. Approximately one-quarter (26.1%) of the 2,342 pupils who participated in the standardization of Level 1 of the test (Educational Research Centre, 1997) attended schools that were designated as disadvantaged by the Department of Education and Science (McDonald, 1998). A slightly smaller percentage (24.5%) of the 2,334 pupils involved in the standardization of Level 2 attended designated schools.

McDonald (1998) described the reading achievements of pupils in designated and non-designated schools in the standardization of the Level 1 test, and reported that the mean levels of performance of pupils in designated schools on Word Analysis, Vocabulary, and Comprehension, as well as on the test overall, were significantly below those of pupils in non-designated schools. The mean total reading score of pupils in non-designated schools was 102.2 standard score points (SD=14.18), while that of pupils in designated schools was 96.4 (SD=12.74), amounting to a mean standard score difference of 6 points (d=.42), or almost half of one standard deviation (Table 2). An examination of the percentage of very low-scoring pupils revealed that 11.11% of 1st class pupils in designated schools achieved scores below the 10th percentile, compared to 7.31% of pupils in non-designated schools. Conversely, the percentage of pupils with scores above the 90th percentile was lower in designated schools (5.1%) than in non-designated schools (12.1%), pointing to a positively skewed distribution characterized by an under-representation of high scores and an over-representation of low scores.

Table 2

Mean Scores (and SDs) of Pupils Who Participated in the Standardization of the DPRT, Levels 1 and 2, by Designated Status of School

Test Level / Group	N	Mean Standard Score	Standard Deviation	% Scoring At or Below the 10th percentile
Level 1 (1st class)				
Designated	612	96.4	12.74	11.11
Non-designated	1,730	102.2	14.18	7.31
All	2,342	100.7	14.05	8.28
Level 2 (2nd class)				
Designated	573	97.0	14.00	13.96
Non-designated	1,761	102.1	14.63	9.31
All	2,334	100.9	14.64	9.60

The percentages of pupils scoring at or below the 10th percentile do not equal 10, as the data presented are unweighted.

Shiel and Morgan (1998) reported similar figures for the standardization of Level 2 of the DPRT (Table 2). Again the data show a significant difference in overall mean score (d=.35), favouring pupils in non-designated schools (M=102.10; SD=14.63) over pupils in designated schools (M=97.02; SD=14.00). Furthermore, in designated schools, a greater percentage of pupils (13.96%) scored at or below the 10th percentile than was the case at Level 1, while 9.31% of pupils in non-designated schools scored at this level.

THE NATIONAL ASSESSMENT OF ENGLISH READING (1998)

In a national assessment of the English reading achievements of 5th class pupils in 1998, a sample of about 4,000 pupils in 150 schools were assessed in English reading using the Tasks for the Assessment of Reading Achievement (TARA)(Cosgrove, Kellaghan, Forde, & Morgan, 2000). The test, which has a mean of 250 and a standard deviation of 50, had been used in a similar national assessment in 1993, and was designed to measure reading in three domains described as Narrative, Expository, and Documents. In the absence of reading achievement data for pupils attending designated and non-designated schools, medical card possession (an indicator regularly used in the identification of schools serving pupils from disadvantaged backgrounds) was used as a measure of pupils' socioeconomic status. Pupils whose parents possessed a medical card were found to score, on average, almost half of one standard deviation below the mean, while pupils whose parents did not have a medical card scored one-fifth of a standard deviation above it. When the performance of pupils whose parents possessed medical cards was compared in the 1993 and 1998 assessments, a difference in mean score favouring pupils in the 1993 group was found: pupils achieved mean reading scores of 234.1 in 1993 and 227.2 in 1998. While in 1998, the mean score of pupils whose parents possessed medical cards was half a standard deviation below the mean, five years earlier it was only one-third of a standard deviation below the mean.

In the 1993 assessment, the difference between the overall reading achievement of boys (M=233.6) and girls (M=234.5) whose families possessed medical cards was not statistically significant. In the equivalent comparison in 1998, the gender difference was not significant either, despite an increase in the difference between the reading scores of boys (M=224.2) and girls (M=230.3). There was, however, a significant gender difference in reading which favoured girls in the total sample.

An examination of school-level data revealed that none of the schools in the top-scoring 20% of schools was designated as disadvantaged, while designated schools constituted three-fifths of schools in the bottom 20 percent. The extent

of the difference in mean scores between the top-scoring fifth of schools (M=274.61) and the bottom-scoring fifth (M=219.95) extends to over one standard deviation.

THE EVALUATION OF EARLY START

Early Start is a preschool project aimed at enhancing children's overall development, and is particularly focused on the development of literacy and numeracy skills. The project was introduced in 1994 to eight preschool units attached to primary schools that were designated as disadvantaged, and was extended to a further 32 units in 1995. As part of the evaluation of the project, the achievements of pupils in 2nd class in reading and mathematics were assessed in 1994 and 1998 (Kelly & Kellaghan, 1999). Initially, the Drumcondra Primary Reading Test (Level 2, Form A) (Educational Research Centre, 1997) was administered to all 2nd class pupils in each of the eight schools in late 1994 with a view to comparing the results with those of pupils who had, and had not, participated in Early Start when they reached 2nd class in 1998. A summary of pupils' achievements is provided in Table 3.

Table 3

Mean Raw Scores and Associated Percentile Ranks, on the DPRT, Level 2, of 2nd Class Pupils in Early Start Schools in 1994, of Early Start Pupils in 1998, and of Non-Early Start Pupils in 1998, by Gender

Early Start 1994 (Pre-treatment Group)					
All (N=351)		Boys (N=189)		Girls (N=162)	
Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank
37.37 (16.47)	39	38.00 (17.74)	42	36.61 (14.87)	39
Early Start 1998 (Treatment Group)					
All (N=143)		Boys (N=69)		Girls (N=74)	
Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank
39.10 (15.42)	45	38.01 (15.07)	42	40.12 (15.78)	45
Non-Early Start 1998 (Control Group)					
All (N=178)		Boys (N=97)		Girls (N=81)	
Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank	Mean (SD)	Percentile Rank
35.22 (14.53)	35	35.34 (15.07)	35	35.09 (13.95)	35

The autumn norms were developed by calibrating the scores of the spring standardization sample. The resulting mean raw score of the norm group is estimated at 42/43, which has an associated percentile rank of 50.

The mean score of the 1994 group is less than one-third of a standard deviation below the national mean ($d=.31$), while the score of the Early Start (treatment) group in 1998 is just above one-fifth of a standard deviation below the national mean ($d=.22$). The greatest discrepancy with normative data occurs in relation to the 1998 sample which did not experience Early Start, and had a mean score that was half of one standard deviation below the national mean ($d=.50$). It should be noted that the distributions of scores are positively skewed in all three groups (i.e., each sample is characterized by an over-representation of low scores). Indeed, the highest frequencies occur for scores falling within the deciles 11 to 20 and 21 to 30, and represent 33.6% of the Early Start cohort in 1998, 40.5% of the non-Early Start cohort in 1998, and 40.1% of the (pre-treatment) Early Start cohort in 1994. There are no significant between-group or within-group gender differences.

THE IEA PRE-PRIMARY PROJECT

The IEA (International Association for the Evaluation of Educational Achievement) pre-primary project is a cross-national study of children's experiences prior to entry into primary education, and of transition into primary school. Ireland joined the project in 1994, and data were gathered on almost 400 children and their families (Hayes & Kernan, 2001). Although the major purpose of the project was to assess the need for, and the utilization of, early childhood care and education, one of the specific interests of the study was the developmental status of the 1994 sample of children at age seven. In particular, the study examined developmental differences between children attending schools designated as disadvantaged and children attending non-designated schools. Of the schools attended by children in the study, 79 were designated as disadvantaged (N=175 pupils) and 115 were not (N=199 pupils). The developmental status of participating children in 1st and 2nd classes was assessed using a number of measures in the areas of cognitive development, language development, social/emotional development, and scholastic achievement. Pupils' achievements were assessed on a test comprised of items adapted from a variety of tests of mathematics, English reading comprehension, and science. The reading comprehension test consisted of picture comprehension, sentence comprehension, and story comprehension items (Hayes & Kernan, 2001).

Table 4

Mean Reading Comprehension Scores (and SDs) of Pupils in the IEA Pre-Primary Project, by Gender and Designated Status of School

	Pupils Attending Designated Schools		Pupils Attending Non-designated Schools	
	M	SD	M	SD
Boys	22.2	8.67	28.1	6.54
		(N=87)		(N=105)
Girls	25.2	8.07	25.9	8.05
		(N=87)		(N=93)
All	23.7	8.49	27.1	7.35
		(N=174)		(N=198)

Pupils enrolled in designated schools achieved significantly lower mean scores in reading comprehension than pupils in non-designated schools (Table 4). Furthermore, the overall reading performance of pupils in designated schools was, on average, about half of one standard deviation lower than that of pupils attending non-designated schools ($d=.37$). While in non-designated schools, there was a significant difference in reading achievement favouring boys, the reading achievements of girls in designated schools significantly exceeded those of boys.

THE EVALUATION OF THE BREAKING THE CYCLE SCHEME IN URBAN SCHOOLS (2002)

The urban dimension of the Breaking the Cycle scheme was evaluated over the first five years of its operation (Weir & Eivers, 1998; Weir, Milis, & Ryan, 2002; Weir & Ryan, 2000). To monitor the scheme's effects on pupils, standardized achievement tests in reading and mathematics were administered to pupils in 3rd and 6th classes in all schools (N=24) that had pupils in the relevant grade levels in the first (1997) and fourth (2000) years of the scheme.

Pupils' achievements in reading vocabulary and reading comprehension were assessed using the Drumcondra Primary Reading Test (DPRT), Form A, Levels 3 and 6 (Educational Research Centre, 1994). Test results are reported for 1997 and 2000 (Table 6) using the mean total reading raw score (i.e., a combined score for both parts of the DPRT). Raw scores representing the number of items correctly answered are used to compare the performance of pupils in Breaking the Cycle schools with that of the norm groups at 3rd and 6th class levels. The maximum possible total raw score on the DPRT is 76, which is

achieved if all answers in the vocabulary (40 items) and comprehension (36 items) subtests are correct.

Third class pupils in schools in the scheme in 1997 were found to have a mean total reading raw score of 29.66, compared to a mean raw score for the norm group of 38.51 (Table 5). A mean raw score of 29.66 corresponds to a percentile rank of 33, indicating that the pupils performed, on average, at the same level or better than 33% of pupils nationally. The mean raw score is more than half of one standard deviation below the national mean ($d=.58$). The mean raw score (28.0) achieved by pupils in 3rd class in 2000 was also significantly lower than that achieved by the standardization sample, and lower than the mean score achieved by 3rd class pupils three years earlier ($t=2.4$; $df=1,1228$; $p<.05$). In 2000, the mean reading score of 3rd class pupils in the selected schools corresponded to a percentile rank of 30, indicating that pupils performed, on average, at the same level or better than 30% of pupils nationally. The difference in the mean score of pupils participating in Breaking the Cycle and that of the norm group had stretched to two-thirds of a standard deviation ($d=.69$).

Table 5

Means (and SDs) of Raw Scores of Pupils in Breaking the Cycle Urban Schools in 1997 and 2000, and in a National Sample on the Drumcondra Primary Reading Test, Levels 3 and 6

Grade level	Breaking the Cycle Schools (1997)		Breaking the Cycle Schools (2000)		National Sample (Norm Group)	
	Mean	SD	Mean	SD	Mean	SD
3rd	29.66	12.67	28.00	11.34	38.51	15.22
	($N = 668$)		($N = 562$)			
6th	29.46	11.93	26.98	11.06	40.38	14.95
	($N = 653$)		($N = 567$)			

At 6th class level in 1997, the mean raw score of Breaking the Cycle pupils on the reading test as a whole was 29.46, compared to a mean of 40.38 for the norm group (Table 5). The corresponding percentile rank for pupils in Breaking the Cycle schools is 27, indicating that they, on average, performed as well or better than 27% of pupils at this level nationally. Thus, the overall reading achievement of 6th class pupils in Breaking the Cycle schools in 1997 was considerably lower than the reading achievement of 6th class pupils in the norm group ($d=.73$). In 2000, the mean raw score of 26.98 achieved by 6th class pupils was almost a standard deviation below the national mean ($d=.90$), and the

average reading achievement of pupils in the cohort corresponded to a percentile rank of 21. As was the case at 3rd class, the mean score achieved by pupils in 6th class in 2000 was significantly lower than that of the 6th class cohort in 1997 (t=3.7; df=1,1218; p<.001).

As well as looking at average scores for the groups, it is useful to examine achievement levels in terms of the number of high-scoring and low-scoring pupils. In 3rd class in 1997, the reading scores of 37.6% of pupils lay one standard deviation or more below the national mean (Table 6), which is more than twice the rate of 18% found in the national sample. By 2000, the percentage scoring at this level had increased to 39.7. Much smaller percentages of 3rd class pupils in 1997 and 2000 had scores that are one standard deviation or more above the mean (4.2% and 2.5% respectively). This pattern is repeated at 6th class, with 45.3% of pupils in 1997 scoring one standard deviation below the mean, while only 3.4% of pupils scored one standard deviation above it. In 2000, the distribution of 6th class pupils' scores was even more skewed, with 54.0% of pupils achieving scores that are one standard deviation below the mean, and only 2.5% above it.

Table 6

Percentages of Pupils in the 1997 and 2000 Breaking the Cycle Cohorts and in a National Sample Scoring One Standard Deviation or More Above and Below the Mean on the DPRT, Levels 3 and 6

Scoring	Cohort	% 3rd Class	% 6th Class
	Norm Group	18.0	18.0
1 SD below mean	BTC 1997	37.6	45.3
	BTC 2000	39.7	54.0
	Norm Group	18.0	21.0
1 SD above mean	BTC 1997	4.2	3.4
	BTC 2000	2.5	2.5

As the Special Education Review Body (Department of Education, 1993) proposed that scores below the 10th percentile signal the need for remediation, this cut-off point may be regarded as appropriate for defining low reading achievement in Breaking the Cycle schools. At 3rd class level in 2000, the total reading score of almost one pupil in four (24.2%) fell below the 10th percentile, while only 0.7% of scores were above the 90th percentile (Table 7). This pattern is repeated among 6th class pupils, with an even greater percentage of extreme low scorers (36.5%), and with 1.1% of pupils scoring above the 90th percentile.

Table 7
Percentages of 3rd and 6th Class Pupils in the 1997 and 2000 Breaking the
Cycle Cohorts Scoring Below the 10th Percentile and Above the 90th
Percentile on the DPRT, Levels 3 and 6

Grade Level	Percentage Scoring	
	<10th Percentile	>90th Percentile
3rd class 1997	23.8	1.8
3rd class 2000	24.2	0.7
6th class 1997	29.4	0.6
6th class 2000	36.5	1.1

To examine in more detail the distribution of scores in 2000, the scores of 6th class pupils by decile are given in Table 8, and illustrate the highly skewed nature of the distribution. Almost 60% of pupils have scores below the 20th percentile, while less than 2% have scores above the 80th. Although the tests administered to pupils differed in the two studies, comparisons of these data with those of Archer and O'Flaherty (1991) for 1983 reveal that there are much greater percentages of 6th class pupils at the lower extreme of the distribution, and fewer percentages of pupils at the higher end in Breaking the Cycle schools than there were in Archer and O'Flaherty's sample. For example, there are significantly greater percentages below the 10th percentile (χ^2=89.25; df=1; p<.001) and below the 20th percentile (χ^2=115.36; df=1; p<.001) in the Breaking the Cycle study. Conversely, there are smaller percentages above the 80th percentile (χ^2=43.16; df=1; p<.001) and above the 90th percentile (χ^2=11.93; df=1; p<.001).

Table 8
Percentages of 6th Class Pupils in Breaking the Cycle Schools in 2000
Scoring at Varying Decile Points on the DPRT, Level 6 (N=567)

Decile	% of Pupils
1st	1.1
2nd	0.7
3rd	1.7
4th	5.3
5th	5.5
6th	7.6
7th	9.5
8th	10.4
9th	21.7
10th	36.5

A comparison of the total reading scores of boys and girls in Breaking the Cycle schools reveals no gender differences at 6th class level in either year, or at 3rd class level in 1997 (Table 9). However, girls outperformed boys in reading in 3rd class in 2000 (t=-2.88; df=557; p<.005).

Table 9
Means (and SDs) of Raw Scores of Pupils in Breaking the Cycle Urban Schools in 1997 and 2000 on the DPRT, Levels 3 and 6, by Gender

Grade level	1997 Mean (SD)		2000 Mean (SD)	
	Girls	Boys	Girls	Boys
3rd	29.2 (12.4)	30.1 (12.9)	29.4 (11.6)	26.7 (11.0)
	(N=327)	(N=341)	(N=265)	(N=294)
6th	29.1 (12.1)	29.8 (11.8)	26.3 (10.5)	27.5 (11.5)
	(N=318)	(N=335)	(N=265)	(N=302)

An examination of the percentages of low-scoring and high-scoring pupils by gender reveals that broadly similar percentages of boys and girls in 3rd and 6th classes achieved low and high scores in reading in 1997 and 2000 (Table 10). The only significant gender differences arose in 2000, where a significantly greater percentage of 3rd class boys than of girls achieved reading scores that were one standard deviation below the mean (χ^2=4.90; df=1; p<.05), and where a significantly greater percentage of 6th class boys than of girls achieved scores that were one standard deviation above the mean (χ^2=3.85; df=1; p<.05).

Table 10
Percentages of Pupils in the 1997 and 2000 Breaking the Cycle Cohorts Scoring one Standard Deviation or More Above and Below the Mean, and Scoring Below the 10th Percentile and Above the 90th Percentile, on the DPRT, Levels 3 and 6, by Gender

Cut-off point	Cohort	% 3rd Class		% 6th Class	
		Girls	Boys	Girls	Boys
1 SD below mean	1997	38.8	36.4	47.8	43.0
	2000	34.7	44.2	55.1	53.0
1 SD above mean	1997	3.1	5.0	3.5	3.3
	2000	2.6	2.4	0.8	3.3
Below 10th percentile	1997	23.9	23.8	28.9	29.9
	2000	21.6	26.5	36.1	37.0
Above 90th percentile	1997	1.2	1.8	0.3	0.9
	2000	1.1	0.3	0.8	1.3

CONCLUSION

It is acknowledged that the studies from which data were extracted for this paper were conducted for a diversity of reasons, used different achievement measures, and (with the exception of Archer and Flaherty's study in 1983) took place over a nine-year period. While these factors to some extent affect the comparisons that can be made, it seems reasonable, on the basis of this review, to draw six main conclusions.

First, the reading achievements of pupils attending schools designated as disadvantaged are consistently below those of pupils attending non-designated schools. The average score of pupils attending designated schools ranges from about half of a standard deviation to over one standard deviation below the national mean. Effect sizes of the differences between pupils attending designated and non-designated schools range from .35 in the standardization of Level 2 of the Drumcondra Primary Reading Test to .42 in the standardization of Level 1 of the test.

Second, pupils attending subsets of designated schools where there are higher concentrations of pupils from disadvantaged backgrounds were found to perform even more poorly. For example, in schools participating in Breaking the Cycle[1], pupils' achievements in 3rd class in 2000 were two-thirds of a standard deviation below the mean of the norm group, and the achievements of pupils in 6th class were almost a full standard deviation below the mean. Effect sizes for comparisons of the literacy achievements of pupils in Breaking the Cycle schools with those of the norm groups range from .58 at 3rd class in 1997 to .90 at 6th class in 2000.

It should be noted that achievement levels in Breaking the Cycle schools may actually be overestimated due to poor pupil attendance during testing sessions, as only pupils with complete reading data (75% of the cohort) are represented in the data described in this paper. In 2000, 8% of 6th class pupils were absent from

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1   Data from schools' applications to join the Breaking the Cycle scheme in 1996 indicate that, on average, 82.8% of the families served by the selected schools were headed by the long-term unemployed, 90.3% held medical cards, 92.9% resided in local authority housing, and 45.7% were lone-parent households. Although comparative data are not available for schools nationally, the national rate of long-term unemployment in 1996 of 6.9% (*Social Inclusion Strategy*, 1999) indicates that rates were twelve times higher among families served by the selected schools than in the national population.

school for both reading subtests, and a further 17% were absent for one of the two subtests. The mean score of the latter group was significantly lower on both reading vocabulary ($t=-2.03$; $df=644$; $p<.05$) and reading comprehension ($t=-2.41$; $df=615$; $p<.01$) than that of pupils who were present for both subtests. Furthermore, teachers were permitted to exclude pupils from testing if they considered them unable to attempt the test items. In 2000, 4.2% of the 6th class cohort were excluded for this reason. If the excluded pupils are added to the numbers of pupils scoring below the 10th percentile, which seems reasonable as they were judged by teachers to be the weakest in the cohort, the estimate of the percentage of pupils with scores below the 10th percentile increases to 40. This figure is also likely to be an underestimate as it does not take into account the fact that the scores of absent pupils (25% of the total cohort) are not represented. The finding that achievement levels in the selected schools are well below those of the norm groups is consistent with the view of some commentators who believe that the social context of the school is of key importance, and that the disadvantages associated with poverty are exacerbated when there are high concentrations of pupils from poor backgrounds in a school (Patterson, 1991; Smyth, 1999; Willms, 1985).

Third, the discrepancy between the performance of pupils in designated schools and that of the norm group tends to increase with grade level. For example, in the standardization of Levels 1 and 2 of the DPRT, the scores of 11.11% of 1st class pupils in designated schools were below the 10th percentile, compared with 13.96% of 2nd class pupils. In 2000, 24.2% of 3rd class pupils in Breaking the Cycle schools and 36.5% of 6th class pupils scored below the 10th percentile. The high percentage of low scorers among pupils in their terminal year of primary schooling is of particular concern as these pupils will be at a severe disadvantage in the transition to post-primary school.

Fourth, while reading achievements in schools which are attended by pupils from disadvantaged backgrounds are considerably lower than achievements in other schools, it should be recognized that some pupils in schools serving pupils from disadvantaged backgrounds perform quite well. For example, 4.2% of pupils in 3rd class in Breaking the Cycle schools in 1997 scored one standard deviation or more above the mean on the Drumcondra Primary Reading Test. Thus, low achievement is not an inevitable consequence of attendance at a school serving pupils from disadvantaged backgrounds.

Fifth, findings regarding gender and achievement, data for which were available for only four of the seven studies reviewed, are mixed. Hayes and Kernan's (2001) report of the IEA pre-primary project indicates that boys (in 1st to 2nd class) were outperformed by girls in reading. In contrast, Cosgrove et al.

(2000) found no significant differences between the overall reading achievements in the National Assessments of English Reading in 1993 and 1998 of 5th class boys and girls whose families possessed medical cards. Data gathered as part of the evaluation of Early Start failed to find any gender differences in three samples of 2nd class pupils, while data collected during the evaluation of Breaking the Cycle revealed more similarities than differences in the reading achievements of two separate cohorts of 3rd and 6th class boys and girls. The minimal gender differences in reading among samples of pupils from disadvantaged backgrounds appear to contrast somewhat (at senior grade levels, in any case) with the findings of the 1998 National Assessment of English Reading in which girls were found to significantly outperform boys in 5th class in reading (Cosgrove et al. 2000).

Sixth, the data presented in this paper suggest that reading standards may have declined in schools that serve large numbers of pupils from disadvantaged backgrounds. On the basis of results of the National Assessments of English Reading, Cosgrove et al. (2000) concluded that reading levels had remained stable between 1993 and 1998, and that there was no evidence that the percentage of low-scoring pupils had increased. (In the 1993 assessment, 17.4% of pupils scored one standard deviation or more below the mean, while in 1998, the figure was slightly higher at 18.1%). This contrasts with the situation in Breaking the Cycle schools, where 54% of pupils in 6th class in 2000 scored one standard deviation or more below the mean, representing an increase of almost 9% on the 1997 figure. A comparison of reading achievement data from Breaking the Cycle with data from Archer and O'Flaherty's 1983 study (undertaken in schools considered to be in areas where disadvantage was prevalent) is also suggestive of an increase in the percentage of pupils from disadvantaged backgrounds with very poor reading levels.

Reading achievement levels among pupils from disadvantaged backgrounds, and in particular those attending schools participating in Breaking the Cycle, are clearly a matter of serious concern, as reading ability is important from a scholastic viewpoint (e.g., it is central to pupils' capacity to understand texts in most curriculum areas), as well for an individual's life chances generally. While it is acknowledged that disadvantage is a reflection of wider social problems, it is also very much an educational issue. The fact that pupils from materially poor backgrounds appear to be at a disadvantage when they enter the school system, and that the gap in reading performance increases as they proceed through school, is something which needs to be urgently addressed by educators. The present review points to the need to establish the extent of the problem and to formulate strategies to address it. A starting point would be to obtain estimates

of reading literacy at various grade levels in designated schools. This might be followed by a more intense examination of a sample of schools in which observational methods would be used, for example, to monitor the relationship between teachers' instructional style and reading achievement. Specific programmes aimed at boosting reading achievement, such as one promoted by Shanahan (2001), could be introduced and their effectiveness evaluated. Shanahan reported improvements in standardized reading test scores in schools serving pupils from disadvantaged backgrounds – sometimes by as much as 20 to 30% in one year - using a specially tailored reading framework. The key features of the framework include ensuring that schools offer substantial amounts of reading and writing instruction (a minimum of 2 to 3 hours a day is suggested), a focus on content which has been demonstrably shown to be essential to reading development, and continuity and connectedness of instruction across teachers and grade levels. Early implementation of such programmes is recommended to prevent the widening of the achievement gap that appears to occur between pupils from disadvantaged backgrounds and pupils from more favourable backgrounds as they progress through the school system.

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