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Inequality in the First Year of Primary School

by Linda Croxford

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Throughout Scotland, the Early Intervention Programme (EIP) aims to raise standards of literacy and numeracy in the first two years of primary school with an emphasis on overcoming disadvantage and inequality. As part of this initiative, one local authority has introduced Baseline Assessment on entry to primary school with a follow-up assessment at the end of the Primary 1 (P1) stage. Analysis of the assessment data linked to other information about pupils' background has enabled us to evaluate the extent of disadvantage and inequality at the start of the EIP.

- ▶ **Levels** of attainment of literacy and numeracy on entry to P1 varied considerably between pupils. Pupils who were younger than average, had English as a second language, came from relatively poor home backgrounds, or lived in areas of multiple deprivation had relatively low attainment.
- ▶ **On** entry to P1 there was no evidence of gender differences in attainment of literacy or numeracy.
- ▶ **Inequality** in literacy increased in the course of P1. Pupils who had relatively low levels of reading attainment on entry to school made less progress in reading by the end of P1 than those who started with high reading attainment. Pupils from disadvantaged backgrounds made less progress than others.
- ▶ **Inequality** in numeracy decreased during P1. There was some evidence of catching-up by pupils who started with relatively low attainment in mathematics. Pupils from disadvantaged backgrounds made as much progress in mathematics as their peers.
- ▶ **Gender** differences became apparent by the end of P1; girls made more progress in reading and less progress in mathematics than boys.

The Early Intervention Programme

In 1996 the *Task Force on Underachievement in Scottish Schools* recommended that the highest priority be given to strengthening the delivery of education in the early years of schooling, with the objective “to overcome by intervention the disadvantages and inequalities of social and domestic background, and to help all children to reach or exceed a minimum level of performance -in language and number especially - by P3” (Scottish Office Education and Industry Department (SOEID) 1996, p1). To meet this objective the SOEID has provided local authorities with £60 million over five years to fund early intervention. Each authority has been free to decide the balance of intervention activities within its schools, and is responsible for their evaluation.

Baseline Assessment

The use of Baseline Assessment has been an important component of EIP. It helps teachers to assess the attainment and needs of their pupils, and is a means of identifying pupils in most need of additional help. It also provides a baseline for evaluating the effectiveness of the EIP. Baseline Assessment is not carried out in a standard way in all Scottish primary schools, and there are no national data on levels of literacy and numeracy on entry to school. A number of different forms of Baseline Assessment have been adopted by local authorities for the purposes of EIP.

This analysis uses standardised assessments developed by the Performance Indicators in Primary Schools (PIPS). For one Scottish local authority it uses assessments of reading and mathematics on entry to P1, and at the end of P1 to estimate pupils’ progress. The data cover all pupils who entered P1 in 1997-98 in all of the schools within the authority. The data provide a unique source of information about attainment, progress and the extent of inequality in P1.

Pupils’ characteristics

To evaluate inequalities in attainment and progress we linked information on individual pupil’s background characteristics to the baseline assessment data. From the school records we derived information about pupils’ sex, age, whether they had English as a second language (ESL), whether they were entitled to a free school meal, and the postcode of their home address. Free meal entitlement (FME) was used as a proxy for a disadvantaged home background. From the postcode of home address we identified pupils who lived in areas of multiple deprivation using the Scottish Office index (Duguid 1995).

Inequality of attainment on entry to school

Analysis of Baseline Assessment confirmed that on entry to school levels of attainment varied considerably between pupils. The extent of inequality in reading and maths attainment is summarised by Table 1. The top half of Table 1 shows that younger pupils tended to have lower attainment than older pupils (-0.3 points per month), and pupils with ESL had lower attainment than those for whom English was first language; the effect of language was greater for reading than mathematics (-5.5 and -1.1 respectively).

The results in Table 1 confirm that pupils from relatively poor home backgrounds (measured by FME), and those living in areas of multiple deprivation, start school with lower than average reading and mathematics skills. It also shows that there is a contextual effect of attending a school in which a high proportion of pupils come from disadvantaged home backgrounds (measured in Table 1 by percentage of pupils with FME attending the school) and this has the effect of reducing average baseline attainment of pupils on entry to school. All of these effects are cumulative, so a child will start school with reading attainment 8.2 points lower than average if s/he has FME (-3.3),

Table 1: Inequality in attainment and progress in reading and maths

Baseline attainment was lower if a child:	Average reduction in:	
	Reading score	Maths score
• was younger than average;	-0.3 per month	-0.3 per month
• had English as a Second Language;	-5.5	-2.0
• had a relatively poor home background (measured by FME);	-3.3	-4.0
• lived in an area of deprivation.	-2.1	-1.8
• attended a school with high % FME	-0.14 per 1% of pupils in school with FME	-0.11 per 1% of pupils in school with FME
Progress was smaller if the pupil:	Average reduction in progress	
• had lower than average baseline attainment on entry to P1;	-1.3 per point below average of baseline attainment	-0.7 per point below average of baseline attainment
• had a relatively poor home background;	-1.5	0
• was male.	-1.1	+0.5

is living in an area of multiple deprivation (-2.1), and attends a school in which 20% more pupils than average have FME (-2.8).

Relative Progress

We measure progress in terms of attainment at the end of P1 after taking account of baseline attainment at the beginning of P1. Factors affecting relative progress are summarised in the bottom half of Table 1. The concern of this analysis is the *relative progress* of disadvantaged pupils compared with their peers.

Inequality of progress

The most significant factor affecting attainment of reading at the end of P1 was the pupil's own baseline attainment in reading. A pupil whose baseline reading attainment was one point above the average had made 1.3 points more progress in reading than the pupil whose baseline attainment was at the average. Conversely, a pupil whose baseline reading attainment was one point below the average had made 1.3 points less progress in reading at the end of P1. In other words, pupils with high baseline attainment had an even greater advantage in reading attainment at the end of P1, and pupils with low baseline attainment had an even greater disadvantage.

In mathematics the relationship was different. There was some evidence of lower attaining pupils catching up with their peers in mathematics. A pupil whose baseline attainment was one point above average at the beginning of P1 had maths attainment at the end of P1 which was just 0.7 points above average. Conversely, a pupil whose baseline attainment in maths was one point below average, had attainment at the end of P1 just 0.7 points below average.

Pupils whose own home backgrounds were relatively poor started P1 with lower than average attainment and, in addition, they made less progress in reading (-1.5) during P1 than other pupils after taking account of baseline attainment. However, they made as much progress in mathematics as other pupils who had the same levels of baseline attainment.

Although pupils living in areas of deprivation started P1 with lower than average attainment, there was no evidence that their progress differed from the progress of other pupils with the same levels of baseline attainment. All of the disadvantage of living in an area of deprivation was accounted for by baseline attainment. Conversely, there was no evidence of catching-up by pupils from areas of deprivation.

Similarly, children with English as a Second Language (ESL) started P1 with relatively low attainment, but made as much progress as other pupils with the same levels of baseline attainment. There was

no evidence of pupils with ESL catching up with the higher attainment of their peers in the course of P1.

There was no evidence of a 'contextual effect' of school intake characteristics on pupils' progress. Although baseline attainment was lower in schools where a high proportion of children had FME, the progress of children during P1 was no different from the progress of other children with the same levels of baseline attainment.

Gender differences in attainment emerged during P1. At the beginning of P1 there was no difference between boys and girls in attainment of reading or mathematics. At the end of P1 boys had made less progress in reading than girls (-1.1), and more progress in mathematics (+0.5). These gender differences had emerged in the course of P1.

The effect of early intervention

The ways in which early intervention strategies have been implemented vary between different local authorities (Fraser et al 1999). In some authorities interventions have been targeted at schools in areas of multiple deprivation while in others all schools have been included in the programme.

The local authority for which this analysis was undertaken has chosen a phased approach which will allow all schools to be included over a three-year period by funding early intervention in one third of schools in each one-year phase. Schools in each phase included a full range of socio-economic conditions. The main aim of early intervention in the authority is to develop methods to improve literacy and numeracy in primary schools which will have long-term widespread effects. Much of the decision making about early intervention has been devolved to schools, and teachers are released from class to work out new methods, extend existing approaches, critically consider different approaches to teaching and learning, and to attend in-service and other staff development activities (Cowie and Croxford 1999).

The PIPS baseline assessments were carried out in term 1 at the start of the EIP, and subsequent PIPS assessments in term 3 were little more than six months after the introduction of early intervention in the schools which were included in Phase 1 of the programme. In this very short time-scale, we cannot expect major improvements in attainment of reading and mathematics.

However, it is very encouraging to find that there were small but significant gains in progress in reading in schools which were in Phase 1 of the programme (+4.3 points on the average reading score, but no difference in mathematics). It is also encouraging to find that in Phase 1 schools there is some evidence of catching-up in reading by pupils who started P1 with

relatively low reading attainment. In future years of the evaluation it will be possible to include more detailed measures of the types of intervention adopted, and to evaluate the relative effectiveness of the approaches adopted.

Issues to be addressed by the EIP

The results of this analysis confirm that there are very substantial inequalities in the baseline attainment of pupils when they enter P1. Concern about such inequality lies at the heart of the EIP, but until now the effect of inequality could not be quantified. For the first time in Scotland the PIPS data make it possible to quantify the effects of relative deprivation on pupils at the beginning of their school careers and evaluate the effectiveness of early intervention in reducing such inequality.

There are a number of questions concerning inequalities in pupils' progress that need to be addressed by the EIP.

- In view of the evidence that pupils with initially low baseline attainment in reading make less progress than those who start with an advantage in reading, how can schools support pupils with low baseline attainment in catching up with their peers?
- Given that pupils from relatively poor home backgrounds start with lower attainment and make less progress than other pupils, what can schools do to ensure that disadvantaged pupils make more progress?
- Given that pupils living in areas of deprivation, and children with ESL, start with lower attainment than other pupils, what can schools do to ensure that their disadvantage is reduced?
- Given that younger pupils start with lower baseline attainment than older pupils, how can schools support younger pupils in catching up with their peers?
- Why do gender differences in attainment emerge during P1? How can schools prevent gender inequality in P1?
- How can schools improve the effectiveness of their teaching and learning approaches?

Further reading

Cowie M and Croxford L (1999) 'Using Baseline Assessment for Early Intervention', paper presented to the British Educational Research Association 1999 Conference. Edinburgh: CES.

Duguid G J (1995) Deprived areas in Scotland: results of an analysis of the 1991 Census, The Scottish Office Central Research Unit.

Fraser H, Pirrie A and Croxford L (1999) National Evaluation of the Early Intervention Programme: NEEIP Briefing 1. University of Edinburgh.

SOEID (1996) Improving Achievements in Scottish Schools. Edinburgh: the Stationery Office.

Further information

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About this study

This *Briefing* is based on an evaluation of the Aberdeen Early Intervention Programme on behalf of Aberdeen City Council.

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