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 -2.1 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

<table>
<thead>
<tr>
<th>Baseline attainment was lower if a child:</th>
<th>Average reduction in:</th>
<th>Reading score</th>
<th>Maths score</th>
</tr>
</thead>
<tbody>
<tr>
<td>• was younger than average:</td>
<td>-0.3 per month</td>
<td>-0.3 per month</td>
<td></td>
</tr>
<tr>
<td>• had English as a Second Language:</td>
<td>-5.5</td>
<td>-2.0</td>
<td></td>
</tr>
<tr>
<td>• had a relatively poor home background (measured by FME):</td>
<td>-3.3</td>
<td>-4.0</td>
<td></td>
</tr>
<tr>
<td>• lived in an area of deprivation.</td>
<td>-2.1</td>
<td>-1.8</td>
<td></td>
</tr>
<tr>
<td>• attended a school with high % FME</td>
<td>-0.14 per 1% of pupils in school with FME</td>
<td>-0.11 per 1% of pupils in school with FME</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Progress was smaller if the pupil:</th>
<th>Average reduction in progress</th>
<th>Reading score</th>
<th>Maths score</th>
</tr>
</thead>
<tbody>
<tr>
<td>• had lower than average baseline attainment on entry to P1;</td>
<td>-1.3 per point below average of baseline attainment</td>
<td>-0.7 per point below average of baseline attainment</td>
<td></td>
</tr>
<tr>
<td>• had a relatively poor home background;</td>
<td>-1.5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>• was male.</td>
<td>-1.1</td>
<td>+0.5</td>
<td></td>
</tr>
</tbody>
</table>
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 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 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 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 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 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 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 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.
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**


**Further information**

For further details contact Linda Croxford, Centre for Educational Sociology, Tel 0131 651 6283, E-mail L.Croxford@ed.ac.uk. The views expressed are those of the author.

---

**About this study**

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

---

**Related CES Briefings**


For a full list and/or copies of CES *Briefings* contact: Carolyn Newton, CES, St John’s Land, Holyrood Road Edinburgh, EH8 8AQ (Tel: +131 651 6243; Fax: +131 651 6239; email: ces@ed.ac.uk).