

ANGUS COUNCIL
EDUCATION COMMITTEE

10 OCTOBER 2000

EARLY INTERVENTION PROJECT: PROGRESS REPORT – PHASE 1 P3 PUPIL ATTAINMENT

REPORT BY THE DIRECTOR OF EDUCATION

ABSTRACT

This report describes the improvements in attainment made by P3 pupils in the first phase of the Authority's Early Intervention Project.

1 RECOMMENDATIONS

It is recommended that the Education Committee:

- (a) notes the terms of this report
- (b) notes in the attached report the analysis of the improved performance in standardised Reading and Mathematics tests recorded by Phase 1 P3 pupils in May 2000
- (c) notes the continuing benefits for learning and teaching in the early stages of primary schools arising from the Early Intervention project

2 BACKGROUND

- 2.1 Progress in relation to the Early Intervention project was the subject of detailed reports to the Education Committee on 26 January 1999 (Article 7 refers) and 23 November 1999 (Article 7 refers)
- 2.2 Members will be aware of the very positive evaluation of the first two years of the Angus project carried out by an external consultant. The report prepared by that consultant indicated that evidence was beginning to emerge of increased pupil achievement in Reading and Mathematics in the early stages of primary school.
- 2.3 The first significant evaluation of the achievement of pupils who were the first to be affected by the Angus Early Intervention Project has been completed by the Council's Early Intervention Team and is attached as an appendix to this report.
- 2.4 The evaluation exercise sought to compare the June 2000 Reading and Mathematics scores of P3 pupils in the eight Phase 1 focus schools with the scores achieved by P3 pupils in the same schools in June 1999 and June 1998 respectively. The June 2000 P3 cohort was the first group of pupils whose early years curriculum had been affected by the Early Intervention Project. The comparisons of P3 attainment over the last three sessions were made on the basis of pupil performance in standardised tests.
- 2.5 The evaluation exercise also sought to compare the Reading and Mathematics scores recorded by last session's P3 pupils in the Phase 1 focus schools with the scores which they achieved in **predictive** tests carried out when they were in P1.

3 EARLY INTERVENTION PHASE 1 PUPIL ATTAINMENT EVALUATION REPORT – SUMMARY OF FINDINGS

- 3.1 A key measure to evaluate pupil attainment in the Early Intervention project has been the use of standardised tests administered in P3 in relation to both Reading and Mathematics.
- 3.2 Since the inception of the project in session 1997-98 measures have been taken of the performance of 3 successive cohorts [Reading] and 2 successive cohorts [Mathematics] in Phase 1 focus schools, identified on the basis of social disadvantage and/or pupil underachievement.
- 3.3 The attached analysis of last session's P3 test scores in the eight Phase 1 focus schools indicates that:
 - the 2000 P3 scores show a marked increase in mean scores compared with the scores achieved by the 1999 and 1998 P3 cohorts

- the percentage of children reaching the average score for their chronological age has risen steadily over the first three years of the project (56%→72% in the case of Reading, 54%→67% in the case of Mathematics)
- there have been significant gains in pupil performance as measured by comparisons between their scores in the P3 standardised tests and their scores in predictive baseline tests conducted when they were in P1 - most pupils have made a 9 point gain in Mathematics and a 13 point gain in Reading
- there are indications that, despite overall progress, girls are outperforming boys – on average the reading scores for girls were 5 points higher than the scores for boys
- the type of assessments and the type of methodologies used within the project enable schools to identify and respond more effectively to those children at risk of significant underachievement in the early stages of primary school
- the overall gains in pupil achievement may be attributable in part to:
 - targeted staff development opportunities for staff teaching in the early years
 - the provision of Early Intervention assistants who provide support to teachers and pupils
 - the use of more effective teaching methodologies including:
 - (i) the use of entry assessments which identify more effectively the starting point of each pupil upon entry to P1
 - (ii) more interactive teaching styles
 - (iii) more focused approaches to the teaching of reading
 - advice and guidance from teachers in the Early Intervention support team who are all experienced and successful infant teachers

4 CONCLUSION

The results of this first major evaluation of pupil attainment are most encouraging. There is increasing evidence that the significant investment of support in the early years is paying dividends. It will now be important to build on the initial successes of the Early Intervention Project by ensuring a sustained commitment to learning and teaching approaches which are shown to be effective. It will also be important to seek to address gender differences and any evidence of underachievement among boys.

It is gratifying to note that 5-14 levels [measured by National Tests] reported in June 2000 in relation to P3 performance in Reading and Mathematics in Angus primary schools show a marked improvement over the performance of P3 pupils in 1999 and 1998. The evidence provided in the attached evaluation report and summarised in 3.3 above suggests that the Early Intervention Programme has made a significant contribution to the improvements in attainment by P3 pupils.

5 FINANCIAL IMPLICATIONS

There are no financial implications arising from this report.

6 CONSULTATION

In accordance with the standing orders of the Council, this report has been the subject of consultation with the Chief Executive, the Director of Law and Administration and the Director of Finance.

JIM ANDERSON
Director of Education

NOTE: No background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (other than any containing confidential or exempt information) were relied on to any material extent in preparing the above report.

Appendix

**MONITORING AND EVALUATION OF
ANGUS COUNCIL
EARLY INTERVENTION PROJECT**

**PUPIL ATTAINMENT (PHASE ONE)
1997 – 2000**

July 2000

CONTENTS

- 1. Background**
- 2. The Tests**
- 3. The Pupils and Their Schools**
- 4. The Results**
- 5. Discussion**
- 6. Summary**

Background to Evaluation

As part of the monitoring and evaluation of phase one of the Angus Early Intervention project, a number of measures have been taken of pupil attainment in focus schools. The design of the evaluation involved taking successive measures of attainment at the primary 3 stage in those schools in 1998, 1999 and 2000. Pupils tested in 1998 and 1999 have not experienced Early Intervention and therefore, can be used as a control group which represents the usual level of attainment achieved by the schools prior to Early Intervention. The pupils tested in 2000 are the first cohort to receive Early Intervention. A comparison is thus possible between the attainment of pupils prior to Early Intervention and that of the first pupils to receive Early Intervention.

Further, extensive entry assessment data was collected on the 1997 cohort in the selected focus schools. This data has been used as a baseline against which the future attainment of these pupils can be measured.

The current evaluation report seeks then to answer the following two questions:

Question 1 -

- How have the Early Intervention pupils performed in comparison with previous pupil performance in the focus schools?

Question 2 -

- How have the Early Intervention pupils performed in relation to their measured baseline attainments?

The Tests

Primary 3 Attainment

The Edinburgh Reading Test was used for all P3 children in the focus schools in 1998, 1999 and 2000. This is a group test consisting of four separately timed subtests. For each child the test yields an overall score for the whole test, separate scores for the subtests and a standardised reading quotient.

Mathematics 7 (Maths 7) was used for all P3 children in the focus schools in 1999 and 2000. This is a group test assessing understanding of number, non numerical processes, computation, mathematical interpretation and mathematical application. The questions are read to the class. For each child the test yields an overall raw score and a standardised score.

P1 Attainment

The Word Recognition and Phonic Skills (WraPS) test was used for all P1 children in the focus schools in 1998, 1999 and 2000. This test yields, for each child, a raw score out of 50, a word recognition age and a word recognition stage (1-10).

Baseline Assessment

In addition to the Leeds "A Framework for Entry Assessment", two measures were taken. The British Picture Vocabulary Scale (BPVS) is an individually administered test of children's receptive vocabulary. The test yields a raw score, an age equivalent and a standardised score. Standardised scores have a mean of 100 and a standard deviation of 15.

Letter knowledge (LK) measures children's knowledge of both names and sounds of the letters of the alphabet upper and lower case.

The Pupils and Their Schools

Eight schools were identified as requiring special focus during phase one of the project. The cohort of 1997 entrants into the above schools numbered 258. At the end of P1 when the WraPS was administered, 234 of these pupils were available for testing. By the third term in P3 when the Edinburgh Reading Test was done, the sample had reduced to 192. One quarter of the original sample had thus been lost due to "natural wastage" over the first 3 years of the project. Complete data (i.e. 5 scores) are thus available for 98 boys and 94 girls.

Age

The mean ages of the children at the time of the administration of the Edinburgh Reading Test are set out in table one below. The range of age contained in this sample is 15 months! It can also be seen that the full range is represented in one school (Warddykes).

Table 1

Ages of Children at Administration of Edinburgh Reading Test
May 2000

School	Mean Age	Boys Mean	Girls Mean	Range
A	8y 0m	8y 3m *	7y 11m	7y 10m – 8y 3m
B	7y 9m	7y 10m	7y 7m	7y 3m – 8y 3m
C	7y 8m	7y 8m	7y 8m	7y 3m – 8y 1m
D	7y 8m	7y 9m	7y 7m	7y 4m – 7y 11m
E	7y 10m	7y 10m	7y 10m	7y 5m – 8y 3m
F	7y 10m	7y 9m	7y 11m	7y 4m – 8y 5m
G	7y 8m	7y 10m	7y 6m	7y 3m – 8y 8m
H	7y 10m	7y 10m	7y 10m	7y 3m – 8y 5m
All Schools	7y 9m	7y 9m	7y 9m	7y 3m – 8y 8m

* School A had only 1 boy in P3

The Results

Question 1 -

- How have the Early Intervention pupils performed in comparison with previous pupil performance in the focus schools?

The data which allows us to make comparisons between the control group children (i.e. previous P3 classes in the focus schools) and our first Early Intervention children, show that gains have been made. The overall mean score on the Edinburgh Reading Test rose from 101 in 1998 to 106 in 2000.

In mathematics the gains were greater, with the overall mean score rising from 101 in 1999 to 107 in 2000.

What is more, the percentage of children reaching the average score for their age has risen steadily over the 3 years of the project. Table 2 shows the mean scores on the Edinburgh Reading Test and Maths 7 test for each year from 1998 to 2000.

Table 2

School	1998		1999		2000	
	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score
E	108	-	107	101	107	109
G	101	-	96	95	108	111
C	104	-	103	110	108	112
H	98	-	102	100	100	101
D	102	-	107	110	115	113
B	95	-	99	105	108	110
F	97	-	102	96	100	98
A	106	-	99	106	103	103
All Schools	101	-	102	101	106	107

Table 3 shows the percentage of pupils achieving a standardised score of 100 or over on the Edinburgh Reading Test and Maths 7 test for each year from 1998 to 2000.

Table 3

Percentage of pupils scoring 100 or above in Edinburgh Reading Test and Maths 7.

School	1998		1999		2000	
	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score
E	83%	-	73%	43%	75%	72%
G	66%	-	40%	38%	71%	87%
C	62%	-	65%	79%	83%	73%
H	56%	-	56%	48%	52%	53%
D	50%	-	67%	76%	76%	70%
B	31%	-	54%	61%	70%	76%
F	48%	-	59%	34%	52%	39%
All Schools	56%	-	59%	54%	72%	67%

It is interesting to speculate on the effects of Early Intervention on the highest achieving children. Table 4 compares percentages of pupils scoring 115 or above in the Edinburgh Reading Test and Maths 7 over the years 1998 to 2000.

Table 4

Percentage of pupils scoring 115 or above in Edinburgh Reading Test and Maths 7.

School	1998		1999		2000	
	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score	Edin. Reading Mean Score	Maths 7 Mean Score
E	27%	-	18%	16%	32%	37%
G	15%	-	5%	5%	29%	53%
C	25%	-	31%	43%	35%	50%
H	16%	-	11%	13%	19%	24%
D	12%	-	41%	44%	65%	53%
B	9%	-	28%	38%	35%	35%
F	8%	-	8%	7%	5%	5%
All Schools	16%	-	20%	24%	31%	32%

Question 2

How have the Early Intervention cohort performed in relation to their measured baseline attainments?

The relationship between the entry assessment and the P3 attainment was tested using the Pearson Product Moment Correlation. Significant strong relationships were found between BPVS scores taken in P1 and scores on the Edinburgh Reading Test ($r = 0.5118$). Even stronger positive relationships were found between the WRaPS scores taken at the end of P1 and the Edinburgh Reading Test ($r = 0.6465$). Strongest of all, was the relationships found between the two P3 measures, the Edinburgh Reading Test and the Mathematics 7 ($r = 0.7438$).

However, these relationships were not equally strong across all schools. The highest performing schools in terms of proportions of pupils scoring at or above the mean, displayed weaker relationships between baseline measures and P3 attainment. For three of the larger schools, there were significant correlations between BPVS scores and Edinburgh Reading Test scores.

Ability

Comparison with the BPVS baseline scores (all standardised scores) would indicate that most children in the sample have made a 9 point gain in maths and a 13 point gain in reading. (The data used in this comparison refers only to the 192 pupils for whom complete scores are available.)

Table 5 compares mean and mode scores on the BPVS, Edinburgh Reading Test and Maths 7 for those 192 children.

Table 5

Comparison of Means and Modes

	BPVS	Edinburgh Reading	Maths 7
Mean	99	105	106
Mode	96	109	105

Age

No significant age effects were found and none were expected given that all the tests are standardised by age.

Gender

Significant gender differences were found. Table 6 shows the boys and girls scores on the Edinburgh Reading Tests separately.

Table 6

Comparison of boys and girls scores on Edinburgh Reading Test (standardised scores).

	Min.	Max.	Mean	Mode
Boys	71	129	103	109
Girls	79	130	108	119

Discussion

Question 1

How have the Early Intervention cohort of pupils performed in relation to earlier school performance?

The answer to the first question appears to be that the pupils who experienced the first phase of Early Intervention have outperformed their predecessors in three ways. They have achieved higher mean scores in reading and in maths; they have significantly increased the proportions of classes scoring at or above the mean and they have also shown significantly larger numbers scoring at the upper end of the distribution in reading and maths (i.e. scoring 115 and above). The effects in maths were found to be even greater than those in reading.

Speculation about what has caused this improvement in performance might look at three areas:

- presence of Early Intervention assistants in P1 and P2 classes.
- supportive visits from members of the central Early Intervention team.
- increased up-take of professional development by early years teachers leading to changes in classroom practice.

During the first phase of the project, only burgh schools received Early Intervention assistants. The assistants were deployed for 0.5 of a week. Regular visits were made by Early Intervention team members to all focus schools.

Information on classroom practice was gathered by questionnaire at the end of the first year. The questionnaires were completed by P1 teachers and by head teachers. All indicated that more time was being spent on literacy-related activities and that some new activities were being used (e.g. more alphabet work; work with big books, phonological awareness training).

Head teachers and P1 teachers indicated that they thought the Early Intervention assistants were the most valuable part of Early Intervention.

Discussion

Question 2

How have the Early Intervention cohort performed in relation to their measured baseline attainments?

The evidence shows clearly that pupils in the focus schools have performed better in P3 assessments than they were “predicted” to perform by their entry assessments. This is especially the case in the schools where high proportions of children reached or exceeded the mean for their age. Children in one school appear to have significantly “over-achieved” with 71% making or exceeding the mean in reading and 87% in maths, whilst the measured average in their baseline ability was below the mean at 96 (BPVS score).

A small number of children (6) have under-achieved and the reasons for this may need to be pursued on an individual basis.

Dividing the data into groups, according to performance on the BPVS allows us to look at the children’s progress in some more detail.

Generally, the lowest scoring children on the BPVS (i.e. those scoring less than 85) were also the lowest scorers on the P3 tests. Out of this group of 19 pupils, 4 managed to score above the mean.

At the other extreme, the highest scorers on the baseline were not so consistent. Out of 31 children who scored 115 or above on the BPVS, 4 scored below the mean on the Edinburgh Reading Test. There was underachievement relative to the baseline noted on the part of the boys and over-achievement by the girls.

Summary

The answers to both evaluation questions have turned out to be positive. The first Early Intervention cohort have done significantly better than their predecessors on standardised tests of reading and number in P3.

What is more, the 192 children on whom data is complete have generally done better than was predicted by their P1 entry scores.

Girls have out-performed boys in two ways. First, they have achieved higher standardised scores than boys. Secondly, they have achieved better results in relation to their entry scores.

Significant differences between schools have been found, in particular, in relation to proportions reaching or exceeding standardised mean scores.