

**The Early Years Enriched Curriculum
Evaluation Project: Year 5 Report**
(Data collected during school year 2004-2005)

**Sproule, L., Harvey-Smith, D., McGuinness, C., Trew, K.,
Rafferty, H., Walsh, G.*, Sheehy, N., & O'Neill, B.**

School of Psychology, Queen's University Belfast
*Stranmillis University College

Not to be quoted without prior agreement from CCEA

Contact: csroule@ccea.org.uk

Submitted March 2006

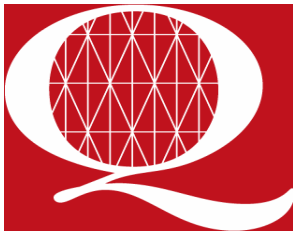


Table of Contents

	Page
Acknowledgements	3
1 Background and scope of the Report	4
2 Progress in mathematics and reading attainment	11
3 Additional age-appropriate literacy measures	19
4 Pilot study on pupil attitudes using PASS	24
5 Contextual data	25
6 The evidence from teachers	29
7 The evidence from parents	36
8 Issues for policy and practice	44
9 Summary and conclusions	49
References	53
Appendix A: Dealing with attrition in our longitudinal participant samples	54
Appendix B: Description of the PIPS multilevel model	58

More detailed analysis of some of the findings, of interest to those more directly involved in implementation of the project, is contained in our Year 5 supplementary evidence. A fuller mathematical description of the statistical model is to be found in the Year 5 technical supplement.

Acknowledgements

The research team would like to acknowledge:

the cooperation and contributions of the schools, teachers and pupils who have participated in the evaluation over the past five years and who have made this longitudinal study possible;

the parents of the children for their support and contributions;

the Board Officers from the Curriculum Advisory Support Service in all five Education and Library Boards who have been involved in the Enriched Curriculum;

Mr Chris Bojke, statistical analyst formerly of the National Foundation for Educational Research, who provided statistical support on the multi-level modelling aspects of the statistical analyses;

Dr Liz Sproule who manages the project on a daily basis, Ms Diane Harvey-Smith, research assistant, and Ms Jacqui Lockhart who is the project administrator;

the funding from Northern Ireland Council for the Curriculum Examinations and Assessment and particularly the support from Ms Marilyn Warren, our main contact at the Northern Ireland Council for the Curriculum Examinations and Assessment.

<p>The views expressed are those of the research team and not necessarily those of the Northern Ireland Council for the Curriculum Examinations and Assessment</p>
--

1. Background and scope of the report

This report details the findings of the fifth school year of the Early Years Enriched Curriculum Evaluation Project and the first year of Phase 2 of that project. An executive summary of this report is available separately. The evaluation has been running since September 2000, when the Enriched Curriculum (EC) was first introduced to six schools in the Shankill district of Belfast. In order to get a full picture of the Enriched Curriculum and its evaluation, this report should not be read in isolation from other yearly reports. These reports and the executive summary for this report are available on the website of the Northern Ireland Council for the Curriculum Examinations and Assessment (CCEA) at <http://www.ccea.org.uk/>. The yearly reports are long because they were intended to be fully informative about all aspects of the project that might be of interest to the various stakeholder groups. The report covering the first phase of the evaluation, up to the end of Key Stage 1, also available from the website, gives a shorter overview of the early stages of the project than the yearly reports.

The Enriched Curriculum

The Enriched Curriculum was devised jointly by CCEA and the Belfast Education and Library Board (BELB) to address the perceived problems in the formal traditional curriculum in the early years, particularly in disadvantaged areas. Curriculum Advisory Officers from the BELB led the project in the early stages. The work was influenced by the experiences of principals, teachers and curriculum advisory officers in the Shankill area that the traditional curriculum was not meeting the needs of children and some schools were already exploring alternative approaches. In addition, the evaluation of a pre-school project, the Greater Shankill Early Years Project (Sheehy, Trew, Rafferty, McShane, Quiery & Curran, 2000), had drawn attention to the difficulties faced by children in the area progressing through the established first year primary curriculum. On a wider scale, the House of Commons Select Committee on Education Report detailed some of the failures of early-years education in the UK and proposed moving closer to the continental model (Early Years Report, 2000). These trends were consistent with international movements in early-years education. (Bertram and Pascal, 2002).

The Enriched Curriculum is a Year 1/Year 2 developmentally appropriate curriculum. Its principal aspirations and qualities can be summarised as follows: -

- Removing the early experience of *persistent* failure and the concomitant promotion of self-esteem for the child is seen as a primary goal.
- A strong emphasis is placed on improvement of oral language skills through such activities as shared reading, circle time and structured play.
- The emphasis on oral language dovetails with activities to enhance phonological awareness and to lay the basis for phonic skills whilst simultaneously developing emergent literacy awareness skills within a rich literacy environment. Formal guided reading work, including reading schemes, is introduced only when the individual child is judged by the teacher to be ready to benefit from such instruction.
- The foundations for a strong sense of number and early mathematical concepts are promoted through sorting, matching, counting and other basic activities. The emphasis is on informal recording techniques until the concepts associated with basic addition and subtraction are well established in the child.
- Good motor development at gross and fine levels is promoted through appropriate indoor and outdoor activities.
- Creativity is encouraged through activities such as role-play, art and music-making.
- Children are encouraged to take responsibility for their own learning.

In the first year of the project, all six schools (9 classes) in the Shankill that were introducing the EC were included in the evaluation. The EC was extended in the second year to other Education and Library Boards in Northern Ireland and was no longer confined to schools in deprived areas. A sample of 6 schools (8 classes) was chosen from schools outside Belfast to illuminate the implementation of the curriculum in other Education and Library Boards and to be more representative of the Northern Ireland school population in terms of (i) the range of intake characteristics of the children, such as the development of their oral language skills; (ii) school location, such as suburban, small town or village; and (iii) socioeconomic

characteristics of the catchment area. The sample was not random; schools volunteered to take part.

In the initial stages, the Enriched Curriculum was characterised as an evolving curriculum and this was seen as a strength, in that it allowed the teachers to exercise their professional expertise within the framework and it engendered a sense of ownership. As the curriculum expanded to include new teachers, new schools, additional ELBS, and children as they progressed through Years 2, 3 and 4, both the strengths and weaknesses of the evolving nature of the curriculum became apparent (see our earlier reports). The main issue has been the consistency and integrity of implementation across contexts.

The evaluation in 2004-2005

In brief, the evaluation during 2004-2005 comprises four strands:

1. Tracking the attainment and dispositions of the children.
2. Structured classroom observation in Year 1 and Year 2 classrooms.
3. Investigation of the views of teachers and professionals.
4. Investigation of the views of parents.

Since our last report, the most important change to the evaluation project has been the increase in the number of schools in the evaluation from 12 to 24 and the consequent rise in the number of children now taking attainment tests to circa 1650¹. With regard to the quality of the sample size in the evaluation, these increases bring the evaluation into line with recommendations in the National Foundation for Educational Research report, prepared for the Northern Ireland Council for the Curriculum Examinations and Assessment (NFER 2004). The increase in the number of schools and in the number of children enables us to be confident that the findings will generalise well to all Enriched Curriculum schools across Northern Ireland. Where the findings in the new schools corroborate previous findings, we can now be more certain that these earlier findings were not particular to a small number of schools but are representative of schools in all groups.

¹ For the twelve schools new to the project, we were picking children up at Year 2 or Year 3. We could not retrospectively acquire baseline data: Thus the sample size is variable over year groups. However, techniques for dealing with missing data in multilevel analysis allow us to make use of every single piece of data, even if a child is tested only once and then leaves the school or is absent for any subsequent testing.

In September 2004, children in the original Shankill pilot cohort of the Enriched Curriculum (EC) moved into Year 5, thus becoming the first Enriched Curriculum children to move into Key Stage 2 (KS2). Enriched Curriculum children in the pilot cohort in our second group of schools, previously called the Contrasting Areas schools because of their very different baseline and socioeconomic parameters, completed Year 4 last June. We now have completed Key Stage 1 (KS1) data analysis for the children in these two samples and the appropriate control groups, and additional analysis for Shankill children in their first year in Key Stage 2. For ease of reading, it is usually convenient in the report to refer to the Shankill schools as Shankill schools and to refer to the augmented Contrasting Areas group of schools, now numbering 18, as Mainstream Schools.

Description of the sample of schools

The evaluation schools are not a random sample because schools volunteer to participate in the Enriched Curriculum and in the evaluation. Nonetheless, the sample is now representative of the Northern Ireland population in terms of sector, Education and Library Board, type of location and level of free school meals entitlement. A breakdown of the evaluation school characteristics is given in Table 1 and shows that we have been successful in getting access to a range of school types.

Table 1: Characteristics of the 24 sample schools participating in the Enriched Curriculum Evaluation 2004-2005

Sector	Controlled	14
	Grant maintained (CCMS)	7
	Grant maintained (Integrated)	3
Education and Library Board	BELB*	6
	NEELB	7
	SEELB	4
	SELB	3
	WELB*	2
Location	City centre	7
	City suburban	4
	Rural/small town	7
	Medium/large town	6
Number of pupils (not including nursery or special unit)	Small (<150)	8
	Medium (150-349)	10
	Large (>350)	6
Free school meals percentage	Large (> 50%)	6
	Medium (16%-49%)	9
	Small (<16%)	7

*WELB is a little underrepresented for its population. Although Belfast looks underrepresented by population, 3 out of the 4 suburban schools are also in the Greater Belfast area but not in BELB.

Teachers from all the evaluation schools are also taking part in aspects of the evaluation.

In addition to the increase of schools and children in 2004-2005, many parents from the new schools responded to our survey, giving data from at least 600 parents in all years of the project. We are now confident that this is a representative sample of parents from the 24 Enriched Curriculum schools in the evaluation.

Longitudinal sample attrition

At this stage we would like to draw attention to a sampling issue that is encountered when running a longitudinal study - the problem of **attrition or drop-out**. This is inevitable in any longitudinal sample and occurs for many understandable reasons – children move away from the area, they change school, they are absent at the period of testing, they are withdrawn from the study either deliberately or inadvertently through not complying with explicit consent forms. The longer the time a study runs, the greater the associated risks of dropout. The issue was exacerbated this year by a lower rate of return of permission slips from parents in a small number of schools, than previously had been the case². This was caused by a combination of factors – changes in the wording of the permission slips, and - for a variety of reasons - reluctance on the part of some school principals to use the project's permission slips. The consequence for this year's testing programme in Shankill schools resulted in 25% attrition from the original baseline sample in 2000 (73% percent of which was caused by population movement over the five year period of the project). This does not constitute a serious threat to the interpretation of the **overall** data, as the numbers involved are very small and can be dealt with in the statistical analyses through estimation procedures. Nevertheless, we have put in place a number of measures to safeguard against sample attrition and to maximise sample size over the next phase of the project (see Appendix A for a more detailed treatment of sample attrition and our proposed strategies for dealing with it).

² *Gaining parental permission.* During the earlier years of the study, parents were informed about forthcoming testing and were given the opportunity to withdraw their child from the study – to opt out. Recent changes in Codes of Conduct of the British Educational Research Association and the British Psychological Society require that research teams ask parents *to opt in* to a study rather than merely opt out. However, 2004-2005 was *not* the first year we used such individual parent permission slips. But for 2004-2005, on the advice of our ethics committee, we did change the wording to include a more specific opt-out statement, and this seemed to have had a negative effect on parental agreement.

Types of evidence discussed in this report

The report presents findings in relation to several types of evidence. These are

- Mathematics and reading attainment of the children, measured by Performance Indicators in Primary Schools (PIPS) end-of year assessments. Full details of these standardised measures have been reported Sproule et al. (2005), (Section 2).
- Written expression of children, as measured by Wecshler Objective Language Dimensions Tests of Written Expressions (WOLD, 1996) and the Book Title Test (Daly, 2000). This WOLD measure was first introduced with Year 4 Shankill children and was administered to Year 4 (mainstream) and Year 5 (Shankill sample) this year. Children are presented with a scenario and are asked to write a piece arising from that scenario in twenty minutes. The test generates scores on the following scales: ideas and development; organisation, unity and coherence; vocabulary; sentence structure and variety; grammar and word usage; capitalisation and punctuation. The first three address the children's ability to generate an accurate, coherent and interesting script, and the later three address formal aspects of language, including the sophistication of the forms used, (Section 3).
- The Book Title Test is a measure of print exposure, and was included to assess whether the Enriched Curriculum had succeeded in increasing children's exposure to a wider range of books. It consists of 40 book titles (plus foils). Children must tick whether they recognise the title of the book or not. This style of test aims to find out the degree to which children are familiar with book titles and can be interpreted as an index of children's independent reading. It is also highly correlated with other measures of literacy (decoding, text comprehension, spelling) and general knowledge. The version used for the study was constructed and standardised on a Northern Ireland sample (Daly, 2000), (Section 3).
- Because of dissatisfactions with previous measures, no self-rated attitudes and dispositions measures were collected on the full sample this year. Instead, a pilot study with a new instrument, Pupil Attitudes to Self and School (PASS), was conducted in preparation for more detailed work in future years³. PASS is an

³ The pilot study was undertaken by Ms Rachel Murray, a trainee educational psychologist, supervised by a member of the research team, Dr Harry Rafferty. The sample size was such that the findings are only tentative at this stage

Ofsted approved instrument and has been given an educational research award in December 2002 through the Learning Skills Council. The PASS website may be viewed at <http://www.pass-survey.com/>. PASS invites children to rate themselves and their attitudes to learning along nine dimensions; feelings about school, perceived learning capability, self-regard, preparedness for learning, attitudes to teachers, general work ethic, confidence in learning, attitudes to attendance and response to curriculum demands. An important feature of this instrument is that the data is collected via computer rather than by pencil and paper, (Section 4).

- Important contextual information was collected from principals about children with special needs and about other programmes in the school that might impact on the Enriched Curriculum, (Section 5).
- Teachers' views on their experience of the Enriched Curriculum continued to be collected, (Section 6).
- Views of parents continue to be collected, (Section 7).
- Issues for policy and practice arising from the evidence (Section 8).
- Summary and conclusions (Section 9).

Structured classroom observation

Data from the classroom observation study in 2004-2005, using the Quality of Learning Instrument will not be reported here. Although new data were collected during the year, concentrating on classrooms of experienced Enriched Curriculum teachers and schools new to the project, it will make more sense to report these data when we have collected evidence from a larger group of schools over the next two years.

Additional evidence

The evidence from teachers and parents is summarised in the main body of this report. Additional and more detailed evidence from teachers and parents, of use in particular to those directly involved in implementing the project, is contained in our Year 5 supplementary evidence. A more detailed rationale for and discussion of the statistical evidence in mathematical form is found in our Year 5 technical supplement.

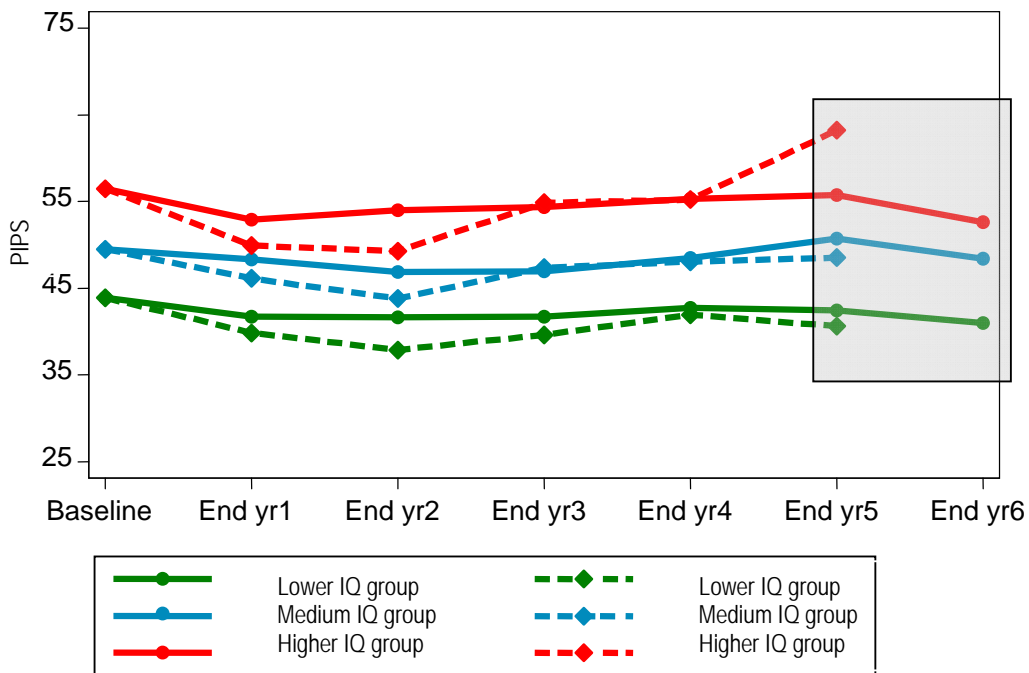
2. Progress in mathematics and reading attainment

As in the Final Report Phase 1 (Sproule et al. 2005), we adopted the methodology of multilevel model regression analyses to allow us to estimate the effect of participation in the EC versus the pre-existing curriculum while controlling for the effects of both other individual and school variables that might impact on attainment. For the purposes of reporting here, the results are presented graphically in Figures 1 and 2 in the sections below. Appendix B gives more details of the model and the coefficients. A fuller rationale and mathematical description of the analysis will be available in our Year 5 technical supplement.

Multilevel Model Summary for Mathematics Attainment

Figure 1 shows the adjusted estimated means for mathematics attainment scores at the end of each year for the High, Medium and Low Ability Groups for EC (broken line) and control classes (solid line). Data points from Year 1 are identical to the data previously reported; data points for Years 2, 3 and 4 include additional data from the augmented sample, while data points in the shaded box represent data collected in a more limited sample, mostly in the Shankill schools only. Interpretation of Years 5/6 results is therefore complex, and *will only become fully meaningful* when data collected in 2005 – 2006 becomes available; these data will then include Years 5/6 data across the whole range of schools.

Figure 1. PIPS Mathematics Attainment over Time for EC/Control group at different levels of ability (EC = broken line; Control=solid line)



Data points in the shaded box refer to a limited sample, mostly Shankill schools only. This graph refers to a girl with a January birthday. For other subgroups the graph will move up and down in accordance with reported effects, for example, up by 0.25 points for a girl with a December birthday.

The first point to note in Figure 1 is that the EC classes were lower than the control classes in Years 1 and 2 for all ability groups (and significantly so in 5/6 cases). At Year 3, EC children's performance began to improve such that by the end of Year 4, there were no statistically significant differences between the EC groups and controls. Year 4 data now include data from the original six Contrasting Areas schools as well as the Shankill schools. Thus the previous finding that in mathematics, EC children in all ability groups do not differ significantly from controls at the end of Year 4 now applies to a more representative sample of schools. The upward trajectory that was reported previously for High Ability EC children in Years 3 and 4 continues into Year 5. Despite the apparent size of the difference, it is still NOT statistically

significant, owing to the small number of cases in this subgroup at this time (coming from Shankill schools only) and to the high variability in their scores. When data from the mainstream schools is added next year, we will be able to see whether this finding is replicated in mainstream schools.

As we have indicated earlier, Years 5/6 data interpretation is limited by the fact that data has as yet been collected only in some subgroups (Year 5 data for *EC* children is from Shankill schools only whereas the Year 5 *control* data includes children from mainstream schools; Year 6 data is only from Shankill controls). However, taking the data as it currently stands, there are no statistically significant differences between the mathematics attainment levels of any of the Year 5 *EC* children compared to that of the control groups.

School effects

For mathematics attainment there were no effects of being in a Shankill versus all other schools *beyond that accounted for by differences in other relevant variables*. The other relevant variables were the child's own ability, gender and month of birth (child variables), and the average developed ability *of the class*, as measured by the mean of the PIPS vocabulary and non-verbal measures in that class (class/school variable). It follows that a child with a certain ability, and in a class with a certain average ability, will make similar progress irrespective of the area in which the school he/she is attending is located. This average class ability effect was 0.66 points per PIPS standardised point. Taking the difference between the top school in terms of ability, with a mean ability of 61.5, and the bottom school, with a mean of 43.6, the difference in outcomes related to these schools for a given child will be 11.8 points, which is a very large effect. When the model included this adjustment for class ability, there was no additional systematic effect of level of free school meals in the school because the two measures are highly related. If the average developed ability was *not* included in the model, the percentage of free school meals would be a significant factor in outcomes, but the average developed ability is a better choice of predictor; it explains more of the variability in scores.

Research has repeatedly shown that the measured developed ability level at baseline is due partly to the child's early home and nursery school experience as well as to

biological factors. But what we have identified here is a systematic peer effect which is affecting mathematics attainment beyond a child's individual ability. While the peer effect is likely to be mixture of the social and economic backgrounds of children and the cultural capital they bring to school, as well as the level of resources in the school itself, the learning effects are likely to be mediated through classroom interactions, teacher expectations, children's responsiveness and so on. It is useful to remember here that our structured classroom observation study identified such differences in children's responses when schools in areas of deprivation were compared with mainstream schools (Sproule, McGuinness, Trew, Rafferty, Walsh, Sheehy, and O'Neill 2005).

Beyond this peer effect, there were no additional significant school differences. This means that, by contrast with the large 11.8 points systematic effect due to the class ability, any other school differences in mathematics performance were too small to be detected by the model. Looking at the variation in scores which is not explained by the model, we point out that the difference between the most effective and the least effective schools is likely to be only of the order of 2.0 points in mathematics, although *we must emphasise that the model cannot confirm that this is so*. Even this difference may be partly beyond the schools' control, because there may be some other systematic factors that we have not been able to take into account.

In summary then, the differences between these findings on school effects and those previously reported is due simply to using class average ability rather than percentage free school meals as a predictive variable for outcomes. Although the two are related, class average ability is better at accounting for school differences than the free school meals measure.

Gender effects

There were no significant differences between boys and girls in mathematics.

Month-of-birth effects

There was a significant effect for month-of-birth, indicating that, on average across the sample, older children do better by 0.25 standardised points per month in mathematics (95% confidence interval 0.15 – 0.34points). The difference between the

oldest and youngest child is expected to be 3.00 points on average, a medium-sized effect. This is smaller than the age effect for reading, suggesting the possibility that mathematics may be more developmentally driven than reading.

Accumulation of effects on mathematics attainment for EC and control samples

The effects of month-of-birth and class average ability are cumulative. Thus the youngest child in the most deprived school is expected to perform at 14.8 points behind the oldest child in the least deprived school. This is a very considerable difference, almost 1.5 standard deviations.

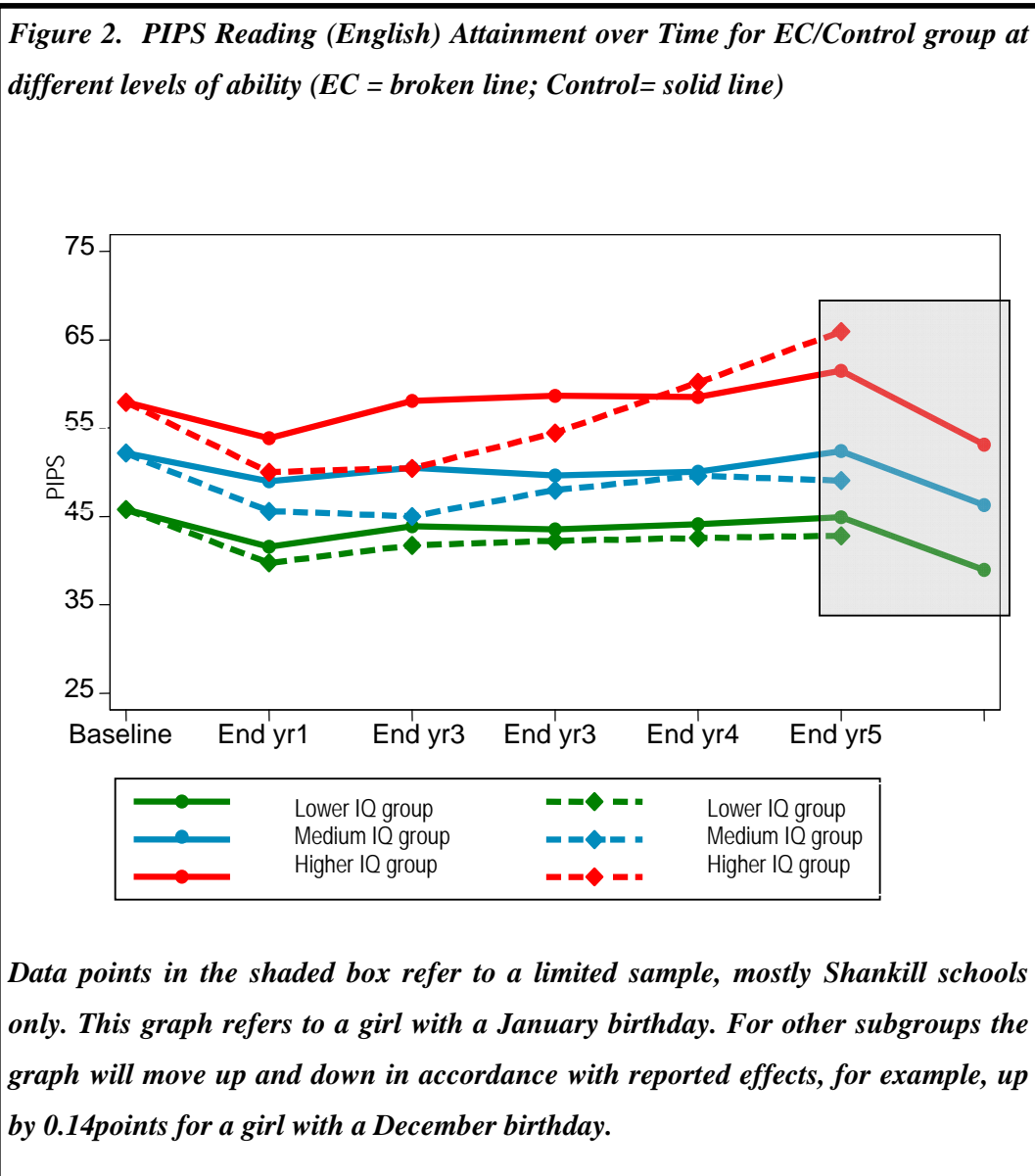
Multilevel Model Summary for Reading Attainment

The pattern of results was similar for reading attainment but there were some differences. At present, the limitations with regard to Year 5/6 data interpretation outlined in the section on mathematics attainment apply also to the data for reading.

Figure 2 shows the reading (English) attainment scores at the end of each year for the High, Medium and Low Ability Groups for EC (solid line) and control classes (broken line), while data points in the shaded box represent data collected in a more limited sample, mostly in the Shankill schools only. Interpretation of Years 5/6 results is therefore complex, and *will only become fully meaningful* when data collected in 2005 – 2006 becomes available; these data will then include Years 5/6 data across the whole range of schools.

The first point to note in Figure 2 is that the EC classes were lower than the control classes in Years 1 and 2 for all ability groups (and significantly so in 4/6 cases). At Year 3, EC children's performance began to improve such that by the end of Year 4, there were no statistically significant differences between the EC groups and controls. This is the pattern that was previously reported and it remains true even with the augmented sample from the new schools. The Year 4 High Ability EC children outperform the matched control sample, but the effect is not statistically significant even in the augmented sample. The upward trajectory that was reported previously for High Ability EC children in Years 3 and 4 continues into Year 5 but it is NOT statistically significant, owing to the small number of cases in this subgroup at this time (coming from Shankill schools only) and to the high variability in their scores.

When data from the mainstream schools is added next year, we will be able to see whether this finding is replicated in mainstream schools.



At Year 5 in the moderate ability group, the control children's reading scores were statistically better than the EC sample, but it should be remembered that these two groups are not well matched as yet: At this time, the control sample contains data from both Shankill and Contrasting Areas schools, while the EC sample represents the Shankill schools only. There were no statistically differences between the two Year 5 lower ability groups.

School effects

For reading attainment also, there were no effects of being in a Shankill versus all other schools *beyond that accounted for by differences in other relevant variables*. The relevant variables are the same as for mathematics. It follows that a child with a certain a certain ability and in a class with a certain average ability, will make similar progress irrespective of the area in which the school he/she is attending is located. This average class ability effect was 0.33 points per PIPS standardised point, which is much smaller than for mathematics. Taking the difference between the top school in terms of ability, with a mean ability of 61.5, and the bottom school, with a mean of 43.6, the difference in outcomes related to these schools for a given child would be 5.9 points, which is a large effect. As for mathematics, when the model included this adjustment for class ability, there was no systematic effect of free school meals level in the school because the two measures are highly related. If the average developed ability was not included in the model, the percentage of free school meals would be a significant factor in outcomes, but the average developed ability is a better choice; it explains more of the variance in scores.

In the previous section on mathematics attainment, we identified this school effect as a peer effect that can be traced to both individual characteristics of the children in the class as well as to characteristics of the school, but which is mediated in and through classroom learning and the factors that influence that learning. This is an important new way of conceptualising school effects.

Beyond this peer ability effect, there were no significant school differences. This means that by contrast with the large 7.6 points systematic effect due to the class average ability, any other school differences in reading performance are too small to be detected by the model. Looking at the variation in scores which is not explained by the model, we speculate that the difference between the most effective and the least effective schools is only of the order of 2.3 points in reading, although *we must emphasise that the model cannot confirm that this is so*. Even this difference may be partly beyond the schools' control, because there may be some other systematic factors that we have not been able to take into account.

Gender effects

Boys reading attainment was significantly poorer than girls – on average 3.15 standardised points for the whole sample (95% confidence interval 2.50 - 3.92). This was true of both EC groups and controls.

Month-of-birth effects

There was a significant effect for month-of-birth, indicating that, on average across the sample, older children in class do better by 0.14 standardised points per month in reading (95% confidence interval 0.04 – 0.24 points). The difference between the oldest and youngest child is expected to be 1.70 points, a smaller effect than for mathematics.

Accumulation of effects on reading attainment for both EC and control samples

Month of birth, gender effects and class ability effects are cumulative. Ignoring the effects of the class average ability for the moment, the youngest boys are expected to be 4.85 points behind the oldest girls on average if they are in similar schools in terms of deprivation. This is approaching half of a standard deviation, a considerable effect. The youngest boy in the most deprived school is expected to perform at 12.5 points behind the oldest girl in the least deprived school. This is a very considerable difference.

PIPS summary

In summary then, the main conclusions from the multi-level regression analyses for mathematics and reading attainment are

- Patterns of attainment for Years 1-4 with the augmented sample that includes mainstream schools are virtually identical to those reported previously. The EC children's reading and mathematics attainment is depressed relative to the controls in the first two years of primary school but they improve in Years 3 and 4 such that there are no significant differences between them at the end of Year 4.

- Year 5 Enriched Curriculum data is currently limited to Shankill schools. Previously reported upward trajectories, especially for high-ability children, are still evident but are not statistically confirmed.
- Previously reported gender effects were confirmed – girls outperformed boys in reading and there were no differences between them in mathematics.
- Month of birth continues to have a significant effect with older born children performing better. The effect is larger for mathematics.
- There are no differences between the attainments of children in Shankill schools compared to other schools, when all other relevant variables are controlled for (e.g., child's ability, average ability of the class).
- An important school effect was identified which we have characterised as a 'peer effect'. It is predicted by the average ability level of the class, and has an effect above and beyond that accounted for by the ability of an individual child.

3. Additional age-appropriate literacy measures

Written Expression. The WOLD test was introduced at the end of Year 4 to assess the impact of the Enriched Curriculum on the development of writing, particularly the compositional aspects of writing. For 2004-2005, data was collected for Year 5 pupils in the Shankill schools and in Year 4 in the mainstream schools.

Owing to factors beyond our control, such as permission from parents or teachers, we were only able to test in four of the six Shankill schools and five of the six mainstream schools. In addition, some teachers objected to using the standardised instructions required for administration of the test; they argued that teaching narrative writing is almost always preceded by discussion of the topic and that launching pupils into a writing task without such preparation would not be fair on the children or reveal the true level of their writing skills. This concern was not confined to Enriched Curriculum classes; control groups were also affected. Data collection was altered in the classes where these concerns were expressed but the data were not used for analysis. Despite the consequent reduction in sample size, the sample remained large

enough to be confident about the effects for the schools in which we tested. However, we cannot yet be confident at this stage that the results would generalise to schools in less defined areas. In future years, we hope to use our findings to show teachers that the test is fair and reasonable, and thus encourage them to allow their classes to participate using the standardised instructions.

EC effects on the WOLD in mainstream schools

The results for mainstream schools are as given in Table 2. Statistical analyses were carried out only for those schools where we had data for both EC and control classes, thus meeting the strictest criteria for matching. The differences between the groups are very highly significant⁴ for the total score and for all but one of the scales, with the Enriched Curriculum children doing better than control children on all scales. For the scale, ‘Grammar and Word Usage’, the difference is still highly significant. The superiority of EC children’s performance is most marked for the ‘Ideas and Development’ and ‘Vocabulary’ scales, suggesting that the improvement reported by many teachers in EC classes in creativity in writing and in oral vocabulary are being identified by this standardised test of written expression. Although the differences previously reported for the EC children in the Shankill schools were smaller, the pattern of gains was very similar.

Table 2. Written Expression: Mean Total Score and Subscale Scores on the WOLD for the mainstream schools sample at the end of Year 4

WOLD Scale	Mainstream EC (N=62)	Mainstream Control (N=68)
Total score***	10.04	7.27
Ideas***	2.13	1.37
Organisation and Coherence***	1.68	1.16
Vocabulary***	1.91	1.16
Sentence Structure***	1.53	1.19
Grammar and Word Usage**	1.35	1.16
Capitals and Punctuation***	1.47	1.22

** $p < .01$ highly significant difference

*** $P < .001$ very highly significant

⁴ This means there is less than one chance in 1000 that the data are misleading.

We have WOLD data from 211 EC and 223 control children altogether in all schools for Year 4. However, the data for all children are not well matched in terms of the school attended or of the teachers who had taught the children. This is the reason for reporting the smaller sample above. Nevertheless, the sample size is sufficiently large that other factors are probably reduced in importance. When we analyse the whole sample, *including mainstream and Shankill schools together*, the results give further support to the findings for the mainstream group, except that there is no longer a significant difference for ‘Grammar and Word Usage’ because the Shankill group did not perform well on this aspect of the test. Linear regression models suggest that gender and social deprivation are important determinants of outcomes. However, we would prefer to wait for a larger sample and subject the WOLD data to multilevel modelling, as we have done with PIPS.

Gender effects in the WOLD in Year 4 and 5

The results are displayed in Table 3. Taking all children together from Enriched Curriculum and control groups, girls significantly outperform boys on every aspect of the WOLD, except vocabulary in Year 5. The vocabulary difference just reaches significance in Year 4. Although given a set topic, children were able to mould their narrative writing to their own interests to a certain extent. Taken in contrast to PIPS picture vocabulary scores, which are significantly lower for boys, this finding therefore suggests that boys may have a better vocabulary on topics which interest them. The superiority of girls on aspects of maturity of written speech is well demonstrated. They are markedly superior in ‘Organisation, Unity and Coherence’ and on ‘Sentence Structure and Variety’.

Table 3. Written Expression: WOLD Year 4 and Year 5 gender effects

WOLD Score	Boys (Year 4: N=311, Year 5 N=112)	Girls (Year 4: N=291, Year 5 N=86)
<i>Total score</i>		
Year 4***	7.92	8.62
Year 5**	9.52	10.74
<i>Ideas</i>		
Year 4***	1.55	1.73
Year 5**	2.01	2.28
<i>Organisation and Coherence</i>		
Year 4***	1.31	1.46
Year 5***	1.51	1.83
<i>Vocabulary</i>		
Year 4*	1.40	1.49
Year 5 ns	1.96	2.09
<i>Sentence Structure</i>		
Year 4**	1.23	1.34
Year 5*	1.35	1.54
<i>Grammar and Word Usage</i>		
Year 4***	1.17	1.30
Year 5**	1.31	1.48
<i>Capitals and Punctuation</i>		
Year 4*	1.23	1.22
Year 5**	1.37	1.53

* $p < .05$ significant

** $p < .01$ highly significant

ns: not significant

*** $P < .001$ very highly significant

The effect of varying the test instructions

It is worth noting that in those classes in which teachers required that the children have an opportunity to discuss the topic of the writing task beforehand, the results were equally good but not better than in the classes in comparable schools in which the test protocol was followed exactly: In a sample of 57 EC and 49 control children, there were no significant differences on any scale or in the total scores between this ‘altered instructions’ group and the standard instruction group. This suggests that in these classes, the discussion process was not improving narrative writing skills. We will endeavour to use these findings to convince teachers that there is every reason to administer the test in accordance with the protocol in future, thus further improving the sample size.

Print Exposure The *Book Title Test* is a test of print exposure, based on a questionnaire in which children tick book titles they have recognised in a given list. The test includes a lie scale; children are penalised according to a specific mathematical formula for ticking fictional book titles, thus reducing their score. Negative scores are therefore possible. The test was administered to 283 children, 85

of whom were EC (Year 5) and 198 were in the control sample (Year 6). The results are displayed in Table 4.

Table 4: Summary of Book Title Test scores and associated age norms

		Mean EC (N)	Mean Control (N)	Corresponding age norm ⁵
Year 5	<i>Shankill</i>	.153 (85)	*	.220
	<i>Mainstream</i>	*	.210 (76)	
Year 6	<i>Shankill</i>	*	.125 (122)	.248
	<i>Mainstream</i>	*	*	

* Not tested

As this is the first year the test has been administered, the data collected for this test do not include matched groups; comparison data for EC and matched control groups will not be available until next year. However, on average, there was a trend for scores of Shankill Year 5 EC children to exceed those of Shankill Year 6 controls ($t = 1.714, p = .08$), which is encouraging. As this finding compares the Year 5 EC group to children one year older than themselves, it suggests that the EC group would significantly outperform a matched control.

As expected from the gender norms, girls significantly outperformed boys on this test in nearly every subgroup, that is, in EC or control groups and in nearly every school. At this stage, sample sizes in each subgroup were too small to be completely confident of subgroup results. Overall, girls outperformed boys by 0.27 standard deviations ($t = 2.3, p = .021$).

⁵ Age norms are based on a sample of 1100 children in schools Northern Ireland who took part in the ACTS thinking skills project.

If the good performance of EC children was to be reproduced in a matched sample next year, it would suggest that the Enriched Curriculum has been successful in widening the children's exposure to a greater range of books.

4. Pilot study using the Pupil Attitudes to Self and School (PASS) instrument for assessing attitudes to school and work

This pilot study was carried out on 208 Year 5 and Year 6 children, 74 of whom were following the Enriched Curriculum and 134 of whom were not. The children all attended schools in areas high in social deprivation. The sample does not map directly on the evaluation sample, but draws from a variety of schools that were pursuing the Enriched Curriculum.

PASS invites children to rate themselves and their attitudes to learning along nine dimensions; feelings about school, perceived learning capability, self-regard, preparedness for learning, attitudes to teachers, general work ethic, confidence in learning, attitudes to attendance and response to curriculum demands. The instrument consists of 50 items to be rated on a 4-point scale. An important feature is that the data is collected via computer rather than by pencil and paper.

Enriched Curriculum children differed from controls only on the confidence in learning factor. A one-way between-groups multivariate analysis of variance was performed to assess group differences. **EC Year 5 children outperformed controls in the confidence in learning scale** { $F_{3, 204} = 3.23$, $p = .023$, partial eta squared = 0.45}. This is considered a medium sized effect.

Given the relatively small sample size, this finding must be considered tentative but it does suggest that it may be worthwhile to do further work with the PASS instrument. If this finding was to be replicated with a larger sample, the Enriched Curriculum would have met one of its objectives, namely, to improve children's attitudes to learning.

5. Contextual data

The researchers have also had formal meetings with all the principals new to the project in the current year, including one new principal in one of the Shankill schools. We also surveyed all the principals in the evaluation. Twenty-three out of 24 principals replied to our survey.

The interviews looked broadly at principals' perspectives on the Enriched Curriculum project to date. The survey gathered data on movement into and out of Enriched Curriculum schools other than at the normal intake and graduation, on special needs and on the number of additional initiatives in which the school was involved.

Principals' perspectives on the Enriched Curriculum project

The majority of principals now report that they see the Enriched Curriculum as a whole school project, having impact on all year groups. A number of the principals have instigated more informal meetings with the research team at which they have talked enthusiastically about their detailed plans for implementing the new programme. Such principals all had excellent planning, together with provision of formal and informal means of exchange of ideas and information between members of staff. A few principals have aired their concerns in relation to insufficient or not sufficiently relevant external training for teachers, especially in Years 3 and 4 where teachers' main concerns are about literacy. Such principals have tried to support their staff to the best of their ability but remain anxious that the efforts of senior staff would be inadequate without further external support.

Information for parents

Whilst virtually all principals hold parent information evenings in Years 1 and 2 that are intended to explain the new curriculum, fewer report giving information on the Enriched Curriculum or on the transition to more formal work to parents of older children. Our parental survey indicates that parents of children at all ages would welcome more information.

Children leaving and entering Enriched Curriculum schools other than normal Year 1 intake and graduation

There is no evidence that children are choosing not to remain at Enriched Curriculum schools, quite the reverse. Principals reported 147 children entering EC schools and 60 leaving during the 2004-2005 school year. Only one child was reported to have left because of the Enriched Curriculum over the last two years. Three schools reported verbally that parents who felt their children might be disadvantaged by the pre-existing curriculum were choosing to travel quite a distance to an Enriched Curriculum school rather than attend a local school.

Special Educational Needs (SEN)

The team collected data on special education needs. Children were allocated scores, by their teachers, on the old SEN scale of 0 to 5 as follows:

- 0 - No special needs
- 1 – Teacher differentiates work in class
- 2 – Advice of Special Needs Co-ordinator in school sought
- 3 – Referred to outside agency, such as Harberton Outreach.
- 4 – Waiting for assessment by educational psychologist
- 5 – Statemented

This is slightly different from the new 0- 4 SEN scale currently in use; we had already started collecting information under the old system and had to continue to use it.

Levels of special needs in school groups and intervention groups

SEN data show that children in Shankill schools have higher levels of teacher-reported SEN, which means that, on average, Shankill classes have a higher SEN ‘loading’ than the mainstream schools (Mann Whitney U-test, $z = 5.8$, $p < .000$). However, the numbers of statemented children in Shankill schools are *less* than expected, (Chi square 5.8, $p < .000$): Given that there are many more low-scoring children in these classes, and many more teacher-reported specific difficulties, it is unlikely that fewer children should be statemented in Shankill schools than in the mainstream schools if equal criteria were to be applied.

SEN data show that **EC children were more likely to be identified as having special needs than control children** (Mann Whitney U-test, $z = 2.5$, $p = .012$). If this is taken at face value, it could be concluded that EC children have more special needs. Alternatively, it could be that better assessment and closer relationships with children, reported by many EC teachers, enable them to identify SEN more accurately; the level reported by teachers may more accurately reflect the number of children who should be statemented in Shankill schools. The PIPS proxy IQ scores would tend to support this hypothesis.

Innovative programmes other than the Enriched Curriculum in operation in evaluation schools

A variety of innovative programmes other than the Enriched Curriculum are implemented in the evaluation schools or in the associated nursery school. It is evident that all schools had innovations that could confound the analysis of the effects of the Enriched Curriculum⁶. The programmes implemented include:

1. Primary Movement Programme
2. Reading Recovery
3. Developing Early Learning and Thinking Abilities Programme (DELTA)
4. Assessment for Learning
5. Accelerated Learning
6. Parental Involvement in Numeracy programme
7. Ready, Get Set Go Mathematics (Eunice Pitt) Phase 1(early numeracy) and/or Phase 2 (shape)
8. Northern Ireland Numeracy Strategy (NINS)
9. Linguistic Phonics
10. Other phonics programmes such as Letterland and Jolly phonics are usually only partially implemented (See the section on evidence from teachers).
11. Fundamental Movements
12. Parent courses such as 'Read to Succeed', 'Count on Success' or 'A Caring Start'.
13. Comet Project (Speech therapy)
14. Language and Learning (Speech therapy)

⁶ As far as we know, the same was true in EC schools not included in the evaluation.

15. Reading Partnership
16. Paired (buddy) reading scheme (Similar to 15).
17. Paired mathematics
18. Reggio Emilia project
19. Drawing Power
20. Formative assessment
21. Brain Gym
22. Thinking skills programme
23. High Scope
24. Healthy Eating
25. Primary Effective Early Learning (PEEL)
26. Character Approach to Problem Solving (CAPS)
27. Structured handwriting programmes

It is not unusual to find a school implementing more than four of these programmes. The great majority employ at least two of them. Some have differential effects over the different year groups; others have a whole school impact. Some of them require significant training and /or administration for teachers. It is also possible that the demands on some teachers or the tension between innovative programmes may have adverse effects on the quality of implementing any one of them. Teachers tend to report well on all new programmes, as at least provoking new ideas. Implementing additional new programmes could have either positive or negative effects on the delivery of the Enriched Curriculum, either diluting effects or synergistically improving practice.

The effect of other innovative programmes on our analysis

We cannot allow for the interactive effects of all of these programmes in our analysis. In the main, we are relying on having a large enough sample to average over the effects of all these programmes, and of course, many of the programmes are also implemented in control classes. The augmentation of the sample to 24 schools in Phase 2 makes this a realistic proposition. We do have systematic data on Primary Movement and Reading Recovery and we will try to build the effects of these into our final analysis.

6. The evidence from teachers

There is both survey and interview evidence to report from teachers. In general, the findings reinforce the findings in previous years from the original twelve schools and support data gathered from parents and other sources. In this section of the report, findings are generally related to Y1 and Y2 teachers together, Y3 and Y4 together or Key Stage 2 (KS2), covering Years 5 to 7.

The teacher survey data

We have amalgamated data collected since the beginning of the survey, in order to present a picture of trends over year groups and across subgroups such as Education and Library Boards. During each year of the study (as the children progressed from Year 1 to Year 5), the teachers of the first cohort of EC children were asked to complete questionnaires. To date, a total of 87 teachers have responded to the questionnaire. During the first four years (Phase 1) of the project, teachers from the six Shankill and six Contrasting Area Schools were surveyed; this was extended in the 2004-2005 school year (beginning of Phase 2) to include the teachers from an additional twelve schools. Schools in the augmented sample (previous Contrasting Areas plus new schools) are now called the Mainstream Schools. These mainstream schools show a spectrum of social characteristics in their intake but none has the same level of social deprivation as the Shankill schools.

The questionnaires included questions designed to assess the teachers' views on: preparation for teaching the EC, demands of teaching the EC, attitudes of others and their own attitudes to the EC, resources for teaching the EC, and the appropriateness of the EC.

A more detailed analysis of these survey data, of interest to those more directly involved in implementing the project and including graphical presentation of results, may be found in the Year 5 supplementary evidence.

Major findings from the survey (2000-2005)

Almost always, data gathered from the twelve new schools were in agreement with data gathered from the original schools in previous years. Where this did not apply,

we have drawn attention to differences. We can now be confident that the views expressed in the survey are representative of the whole group of Enriched Curriculum teachers.

The results show that, throughout the duration of the study, teachers expressed mostly positive attitudes regarding the EC. The pattern of attitudes in the 2004-2005 year of the study was virtually identical to that for the results for Phase 1 of the study, which covered the twelve original schools up to the end of Key Stage 1 (KS1).

Most of the teachers considered that they had been at least *adequately* prepared for teaching the EC at the start of the school year. In contrast, teachers rated their preparation for teaching the EC at the time of the survey (early spring) more positively. Over 50% of teachers considered that they were 'well prepared' for teaching the EC at the time of questioning. All but three of the teachers considered teaching the EC to be at least as demanding, or as even more demanding, than teaching the traditional curriculum. The great majority of teachers rated both the attitude of parents and their own attitudes positively. Similarly, the majority of teachers rated the attitudes of others such as colleagues and principals positively. Exceptionally, one teacher considered the principal as having a negative attitude, one rated her own attitude as negative and two rated the attitude of parents and colleagues as negative. Only fifteen teachers were *completely satisfied* with the resources supplied to support teaching. The remainder rated the resources as *satisfactory* or *less than satisfactory*. While the great majority of teachers emphasised the appropriateness of the EC for their class, three considered it to be inappropriate and eight were neutral. Similarly, the majority considered the EC to be appropriate for all of the children in the class, while seventeen disagreed.

The effect of Education and Library Board (ELB) and school location

There were some differences in responses between the teachers from the Shankill Schools and those in mainstream schools. It is difficult to disentangle which of these were due to the location of the school and which were due to ELB differences. The slightly more negative attitudes of Year 3 and Year 4 Shankill teachers, which we reported in previous years, were disproportionately responsible for the differences.

The teachers from mainstream schools responded in a slightly more positive way compared to teachers in Shankill Schools. Compared to mainstream teachers, a slightly higher percentage (13%) of Shankill teachers considered themselves to be poorly prepared for teaching the EC.

Mainstream teachers rated the attitudes of others, including teachers, principals, colleagues and ELB officers more positively than Shankill teachers. Furthermore, teachers from mainstream schools rated their own attitudes more positively than those from Shankill Schools. There are no significant differences in responses of teachers in different Education and Library Boards. However, there is a tendency for the teachers from BELB and NEELB to rate the attitudes of others such as parents, colleagues, and the principal as less positive as well as rating their own attitudes less positively than the teachers from other ELBs.

Comparison of Teachers at Different Key Stages

Overall, the Year 1 and Year 2 teachers rated their preparation for teaching the Enriched Curriculum (EC) at the start of the year the most favourably. Teachers' attitudes became gradually less favourable as the survey progressed through KS1 to KS2. Although there were only 7 KS2 teachers surveyed to date, none rated themselves as being 'well prepared' or 'very well prepared'. Year 1 and Year 2 and other KS1 teachers were more positive in rating their preparation for teaching the EC at the time of testing in comparison to KS2 teachers. These findings may be accounted for by differences in the amount of training given to teachers of different year groups, and is supported by attitudes expressed during the teacher interviews. The majority of teachers in each of the key stage groups considered the demands of teaching the EC as being equal to or greater than the traditional curriculum. This was supported by information obtained in the interviews.

The majority of teachers considered the parents, principals, colleagues and ELB officers to have relatively positive attitudes to the EC. The Year 1 and Year 2 teachers tended to view these others as having more favourable attitudes to the EC compared to the other KS1 and KS2 teachers. Consistent with the teachers' perceptions of parents' attitudes, parent questionnaires revealed that the majority of parents were quite positive about the EC. One Y3/4 teacher rated the attitude of the principal as

‘negative’. Although none of the KS2 teachers rated their colleagues as having negative attitudes, interviews with teachers highlighted some concerns by teachers of the older children regarding the transfer procedure in Year 7.

There is a trend for the Y1 and Y2 teachers to rate the resources more favourably compared to the other KS1 and KS2 teachers. This is supported by information given during the teacher interviews which suggests that more funding was given to the teachers in Y1 and Y2 compared to the teachers of the older year groups. The majority of teachers in all groups rated the appropriateness of the EC favourably. However, there is a trend for the Y1 and Y2 teachers to rate the appropriateness of the EC more favourably than the other KS1 and KS2 teachers. None of the 7 KS2 teachers rated it as ‘highly appropriate’. The majority of all teachers in the three groups considered the EC to be appropriate for all of their children. However, the pattern changed across the key stage groups with an increasing percentage in KS1 stating the EC was not appropriate for all of their children. The comment in bold above about misinterpretation of the question applies here also. Future questionnaires will be redesigned to make this point clear.

Overall, the teachers in each group expressed themselves as having quite positive attitudes to the EC. Only one Y3/4 teacher rated her own attitude as ‘negative’. The teachers’ own attitudes towards the EC were more positive in Y1 and Y2 and became less positive over KS1 to KS2. Linking the survey results with evidence from the interviews, we consider that the teachers who had more negative views were often puzzled by what might constitute the Enriched Curriculum for KS2 and how a curriculum, that was originally conceived as play-based in the earlier years, could be adapted for older pupils.

Interview evidence from teachers

During each year of the study all of the teachers of the first cohort of EC children in the six Shankill Schools and six Contrasting Area Schools were asked to participate in interviews. Last year the additional twelve new mainstream schools were added to the study and all EC teachers in KS1 were invited to participate in interviews. In cases where there were large numbers of teachers in each school, focus groups were used. The interviews/focus groups involved questions designed to sample the teachers’

views on oral language, literacy, handwriting and numeracy, resources, demands of teaching the EC, structured play, suitability for ability groups, parents' attitudes and preparation and training for teaching the EC. The interview protocol has been continually refined over the course of the project to reflect teachers' own ideas of important questions and the research team's developing knowledge of the issues. Teachers' interviews were recorded, transcribed and content analysed to highlight recurring themes and attitudes shared by the teachers.

A detailed analysis of these data, of interest to those more directly involved in implementing the EC project, may be found the Year 5 supplementary evidence.

The findings from interviews

Almost always, data gathered from the twelve new schools were in agreement with data gathered from the twelve original schools in previous years. **We can now be very confident that interview data previously presented are representative of the whole group of Enriched Curriculum teachers.**

As we have previously reported, most teachers were very positive regarding the Enriched Curriculum (EC). Overwhelmingly, teachers pointed out advantages of the revised curriculum. The most important themes are discussed below.

Teacher training

Training was an issue that was mentioned often. Year 1 teachers felt that they had received more training at the beginning of the pilot in comparison to teachers of older year groups. Each group of teachers encountering the first cohort of children for the first time felt that the amount of training was insufficient *and that it came too late*. Many teachers pointed out that extensive training should be provided in the year before EC teaching is due to start rather than in the September of the teaching year. Teachers' difficulties in relating training to their own practice is illustrated by these comments, which were not untypical:

I found the training courses were not connected to reality.....and then they tell you to put the teacher's desk outside the classroom to give more space. It's

not practical!.....I think when you go to the courses you have to think 'Yes that's wonderful but what part of that can I implement?'

They are the first cohort through. We are looking at what we need to be teaching the Enriched Curriculum at this stage. And none of us (in the cluster groups) know what we should be doing. For me it is just a normal class and we try to teach normal things.

Teachers also pointed out that students from teacher training colleges varied in their knowledge of the EC, and pointed out that the colleges would not change their study programmes regarding the EC until it was rolled-out fully. Teachers also raised other important points regarding the training for the EC, for example, differences in guidance between the ELBs and the importance of dispelling myths regarding the EC.

The 'Enriched Curriculum' in Key Stage 2

Only in the original pilot group of Shankill schools had the EC children reached Key Stage 2. These KS2 teachers did not receive any training outside school but nevertheless, some thought of themselves as being part of the EC project and quite well informed. Other teachers did not have any information on what to expect from the EC children, other than that gleaned from staff-room exchanges. Formal interchange of ideas between Key Stages 1 and 2 teachers was less likely than exchange within each stage. Teachers in KS2 are less likely to see themselves as part of the Enriched Curriculum project than KS1 teachers, although it varies a lot from school to school. However, whether they do regard themselves as Enriched Curriculum or not, they freely acknowledge that the project has had consequences for their own practice.

In those schools in which the evidence had previously suggested that the Enriched Curriculum was working well and was embedded into the culture of the school, KS2 teachers were more positive than Year 3 and Year 4 teachers had been. These teachers were extremely enthusiastic in their responses, attributing many good outcomes to the Enriched Curriculum; more fluent reading, better mental mathematics skills, improved teacher relationships with children, better peer relationships, improved self-esteem in children, better attitudes to learning and an independent approach to learning. In some schools in which Year 3 and Year 4 teachers had been less positive,

there was a turnaround with Year 5 teachers. While not as enthusiastic as the most positive group, they nevertheless saw the children as more verbal, more responsive to the teacher and more engaged in learning in their EC class. Compared to Y3 and Y4 teachers in the same schools, they did not have the same worries about literacy outcomes, which they described as being no different from those in control classes. In a final group of schools, in which Y3 and Y4 teachers had been mixed in their views of the Enriched Curriculum, Y5 teachers were extremely sceptical that there were any improvements and did not seem to want to engage with the EC at all.

How do we account for the various perspectives of KS2 teachers? Given the perception that KS2 teachers were not part of the Enriched Curriculum project, they are perhaps able to stand back and observe the children more dispassionately than was possible for teachers in KS1, who were constantly worrying in their first year about whether what they were doing was leading to improvements in children's learning. In some cases, those who reported better relationships in the classroom found it easier and less stressful to teach the children. One teacher even reported that her first Enriched Curriculum class had persuaded her to stay in teaching. Greater reciprocity from the children is likely to provoke, in turn, a warmer and more contingent response from the teacher. Over time, a new and more receptive culture may emerge in which teacher and child better understand one another's goals and intentions. This is an environment in which teachers can become better at scaffolding learning and where children can more readily profit from teachers' strategies. The project now needs to examine ways in which this positive classroom climate can become more widespread.

Finally, KS2 teachers believe that the curriculum can no longer be as child-centred as in KS1; it is more content driven than for younger age groups. Many teachers have reported wanting to be child-led but 'having to move on' at a time when they believed the children were not ready to do so. Even in classes where few children were expected to take part in the selection procedure, many teachers felt that they had to cover certain topics, whether children were ready or not. Those teachers who were very positive continued to work in a developmentally appropriate way while relating the work to curriculum content as far as possible within this constraint. These teachers were relaxed as long as each child was making progress within their capabilities.

Teaching reading

In the twelve new schools we found, as we had in the original twelve schools, that this issue was the most common cause for concern amongst teachers in Key Stage 1. Many teachers were uncertain as to how they should be teaching reading, although in other schools, there was clearly defined planning across all year groups and teaching reading was not a problem. There was particular confusion about phonics and its relation to word decoding skills. This important issue is discussed much more fully the Year 5 supplementary evidence.

There is increasing evidence that teachers do not always adhere to guidance in the pedagogy of reading where it conflicts with their strongly held beliefs. Although all teachers will modify their practice to a greater or lesser extent after training, training is more supportive when teachers' concerns are sensitively addressed and training staff recognise that it is difficult for some teachers to change their practice radically over the space of a single year.

7. The evidence from parents

There is both survey and interview evidence to report from parents. In general, the findings reinforce the findings in previous years from the original twelve schools and support data gathered from teachers and other sources. In this section of the report, findings are generally related to Y1 and Y2 parents together, Y3 and Y4 together or Key Stage 2 (KS2), covering Years 5 to 7.

Parental survey data

Parents' attitudes were measured by administering a questionnaire. Each year the questionnaires were distributed to all of the parents of the first cohort of EC children in the Shankill Schools and Contrasting Area Schools. Shankill parents were excluded in the fifth year of the study (2004-2005) due to decreasing response rates; we also felt that we would want to examine their views at the end of KS2 and did not want to overburden them with the need to comment each year. The parents of children in the first and second EC cohorts (Year 4 and Year 3) of the Contrasting Areas Schools as

well as 12 new mainstream schools (Year 3 and Year 2 in 10 schools and Year 4 and 3 in two schools) were surveyed. The total number of responses was 623, which included 42, 95, 90, 98 and 298 parent questionnaires in Years 1, 2, 3, 4 and 5 of the evaluation respectively.

In the earlier years of the study, the questionnaire contained questions assessing parents' views of the reasons for the EC, effects on future success, child happiness, preference for EC or traditional methods, and parents' contribution to education. As the children progressed through year groups and new issues were highlighted throughout the study, the questions were modified. As the study progressed, the questionnaire was developed to include questions to assess parents' views of the child's achievement and attitudes in reading and number work, the amount of formal work and practical work, information provided by the school and the child's attitude to learning.

A more detailed analysis of these survey and interview data, of interest to those more directly involved in implementing the project and including graphical presentation of results, may be found the Year 5 Supplementary evidence.

Major findings from the survey

Complete Survey (2000-2005)

The findings confirm our previous findings reported at the End of Phase 1. Overall, the majority of parents expressed extremely positive attitudes regarding the EC. Some parents had concerns about reading, but some also reported that their earlier concerns in this area had been unfounded. A small number of parents are quite negative, usually because they perceive that their child is not doing as well as they had hoped.

Questions included in the earlier versions of the survey

In the first years of the survey, the parents were asked about the school's reasons for changing to the EC and they gave a variety of responses. The most common reasons given were that the changes were based on research, to make learning more enjoyable and because the old way was ineffective. At the beginning the parents were very positive about the effects of the EC and virtually all of the parents stated their belief

that it would help their child succeed. Just over half of the parents believed that the EC changed the way they worked or played with their child. Of those parents who had older children, the majority rated their EC child as making better progress because of the EC. Only a small number preferred the old method. Just over half of the parents considered themselves to be more involved or contributing more to their child's education.

Questions included in the later versions of the survey

These questions were asked over two years of the study only (2003-2004 and 2004-2005). The pattern of responses was similar in both those years.

All but a few parents rated their EC child as being happy at school. From the written comments, the child's happiness was clearly very important to most parents; they believed that happiness in school was an aid to learning.

Most of the parents had positive views of their EC child's progress in reading considered it to be as good as expected or better. Only a small minority rated this progress as poorer than they had expected. **Similarly, the vast majority of the parents rated their child as having a positive attitude to reading, with only a small minority responding less favourably.** This finding supports the perception of most teachers. Given that the OECD PISA study (2000) found that engagement in reading could, to some extent, compensate for low socio-economic background, this is an important finding. Many free responses indicated that EC children's performance and attitude were superior to that of older siblings following the pre-existing curriculum.

The parents had positive views of their child's progress in mathematics and only a small minority stated that progress was less than they expected. Children's attitudes to mathematics were also rated favourably by parents; all but a small percentage rated their child as having a good or very good attitude to mathematics. Many free responses indicated that EC children's performance and attitude were superior to that of older siblings following the pre-existing curriculum.

Virtually all of the parents considered the amount of formal work to be appropriate and few considered it too much or too little. All but a few parents stated that they would like their child to continue with a high level of practical work in KS2.

Over half of the parents felt that the EC had improved their child's chances of success with many more considering it to have a neutral effect.

While the majority of the parents were satisfied with the information provided by the school about the EC, a sizeable number considered it to be less than satisfactory. It was the most common complaint from parents.

The vast majority of parents considered their EC children to have positive or very positive attitudes to learning.

Parents considered their EC children to be very interested in the world outside school and home. They feel that observational skills learnt in school transfer well to everyday life, often comparing them favourable to older siblings doing a traditional curriculum in this respect.

Responses across Education and Library Boards

The pattern of responses in the different Education and Library Boards was examined. Interesting patterns are outlined below.

Questions included in the earlier versions of the survey

In relation to reasons for the change in the curriculum, more parents (80%) in the WELB considered this to be related to comparative research, compared to less than 5% in the BELB. This suggests that those parents in the WELB were well informed about the reasons for the EC. In comparison to other ELBs, a greater percentage of parents in the SELB (approximately 30%) considered the reason to be related to making learning more enjoyable. In all of the ELBs, most of the parents considered that the EC would help their child to succeed. Those in the SEELB were marginally less positive.

A greater percentage of parents in the NELB and BELB said that the EC had made a difference to the way that they work or play with their child in comparison to the other ELBs, whereas the majority of parents in the SELB and WELB considered that it had made no difference. Parents who could make comparisons with older children were asked if the EC child was making better or worse progress because of the EC. The only boards in which a small number of parents preferred the old curriculum were NEELB and BELB. Compared to the other ELBs, more parents in the BELB preferred the new curriculum. Parents were asked if they felt that they were involved or contributing more to the child's education under the EC. Parents in the SELB and WELB were most positive with over 80% of parents in each board agreeing. Fewest parents in the SEELB considered themselves to be contributing more to their child's education.

Questions included in the later versions of the survey

Progress in reading was considered to be most favourable by parents in the WELB, who also rated their child's attitude most favourably. There were no noticeable differences between ELBs in the parents' views on maths progress. The percentages of parents who considered their child's attitude to maths to be 'very good' were greatest in NEELB, SEELB and WELB. All of the parents in BELB wanted the high level of practical work to continue. A smaller majority of parents in the NEELB agreed and a few of those parents suggested that they would prefer practical work to be combined with formal work.

In comparison to other ELBs, more parents in WELB rated the information provided by the school as 'completely adequate'. Fewest parents in the SELB and more parents in SEELB rated the information provided as 'inadequate' in comparison to other areas. Greater numbers of parents in the NEELB and WELB (approximately 65%) considered their child to be 'very eager to learn'. While in comparison to other ELBs, more parents in BELB considered their child as 'not as eager as I would like'. In comparison to other ELBs, more parents in the WELB considered the EC to have improved their child's chances of success.

Parent Interview data

Each year the attitudes of a sample of parents were also assessed by conducting structured interviews, which supplemented the information obtained in the questionnaires. Rather than a random selection as in previous years, this year twelve parents were selected in fifth year of the study (2004-2005). They included six parents who had written positive comments on the questionnaire (four from the New Schools and two from the Contrasting Area Schools) and six who had written negative comments (four from the New Schools and two from the Contrasting Area Schools). These parents were carefully selected to represent both extremes of opinion.

The interview schedule contained questions about parents' children's attitudes to the EC, parents' knowledge of the EC, interaction with the school, family literacy and family interaction and children's achievement. Parents' interviews were recorded, transcribed and content analysed to highlight recurring themes and attitudes shared by the parents.

Findings from the parents' interviews

Overall, the parents were positive or very positive about the EC, *even those who had appeared negative in the survey*. All parents were able to highlight numerous advantages of the new curriculum. Some concerns were also raised. The main themes are described below.

It is important to remember when considering the interview data that some very negative parents (from the survey) were deliberately selected for interview.

Children's and parents' attitudes to the Enriched Curriculum

Overwhelmingly, parents described their child's enjoyment of school and attached great importance to it, as had parents in the survey. Even those with relatively negative attitudes acknowledged their child's happiness at school.

Parents' own attitudes were also mostly positive. Some parents described great satisfaction with the EC and expressed their desire for younger siblings to have the same experience. Other parents voiced concerns about the EC. For example, some feared that their children could potentially be disadvantaged as a result of the EC and

some were concerned that the EC would lead to disadvantage in terms of transfer test performance. Some parents regarded the EC as suitable for all children, with the advantage that children's individual needs are met. Other parents felt the EC would be more suitable for less able children and expressed the fear that their child would be 'held back'.

Knowledge about the Enriched Curriculum

Some parents appeared to be more knowledgeable about the Enriched Curriculum than others and, while some were aware of reasons for the school taking on the Enriched Curriculum, others were not. Some parents expressed their understanding of the value of play in learning in the early years. One parent did not value play, and felt that children should begin formal learning at an early stage. Those parents who had not been informed that the school would introduce the EC until the child enrolled felt some resentment that they did not have any choice about it. Furthermore, although some parents felt informed about the progress of the Enriched Curriculum as their child progressed through each year group, others felt that information decreased as the child progressed further up the school. The lack of information as children progressed is one of the most common complaints made in the free response section of the survey.

Interaction and relationships

There was variation in parents' relationships with teachers. Some parents described the teachers as very approachable, and the school having an 'open door' policy that was greatly appreciated, while others felt that they had more difficulty in discussing concerns with teachers. Several parents expressed the advantage of the EC in terms of social and emotional development, which particularly benefited their child. Parents also pointed out how confident their children are and attribute this to the EC. Parents described their role in their child's early-years education as providing a supportive environment and assisting the teachers and the school. Some felt that they could have an even bigger input if they were given more information.

Children's achievement

Some parents compared their children's general progress as greater compared with children in the traditional curriculum. For a much smaller number, it was vice versa.

Reading: Parents who were able to make comparisons to siblings and other children of similar age, expressed satisfaction with their child's progress in literacy. One parent described her child as being in a weak reading group, but considered her to be progressing well. Some parents described their children as 'taking off' indicating that they suddenly noticed the rapid improvement previously reported by us, usually around Year 3. Parents made comparisons with older siblings who had learned to read using flashcards, and some felt that their younger children (EC) had better ability to tackle and read unfamiliar words. Parents also commented favourably on their child's pleasure in reading. Other parents expressed concerns about their child's progress in literacy. Two parents were concerned that their child may have difficulties and that these were not being addressed by the teachers or school.

Handwriting: Some parents were worried about the quality and teaching of handwriting. Some pointed out that they preferred the more formal approach to teaching handwriting.

Numeracy: While most parents seemed to be satisfied with numeracy, others expressed concerns in relation to knowledge of number bonds and practice in 'sums'. One parent acknowledged that her child has difficulty with numeracy but stated that she thought that she would make progress by Y5.

Other points: A few other interesting points were made during the interviews. Some parents considered that their children had particular difficulties and that these were not being recognised or addressed because of the EC emphasis on giving children more time in reading and mathematics domains. One parent stated strongly that she queried the interpretation of the EC by the school and teachers and therefore how the EC curriculum is being implemented.

8. Issues for policy and practice

As well as providing annual summative evaluations about the progress of the Enriched Curriculum project, the evaluation team has a formative evaluation role and a responsibility to provide feedback to CCEA about the implementation of the EC and related issues. In the Final Report Phase 1, 10 of our 14 recommendations were about implementation and were organised around two themes: **Principles and Pedagogy** and **Professional Development and Resources**. It is to these issues that we now turn. In doing this, we draw not only on the extensive data sets that we have collected but also on the informal professional knowledge that members of the research team have accumulated by interacting with teachers, schools and other professionals over the course of the evaluation.

In last year's Final Report on the first four years of the project, we made specific recommendations related to developing oral language, teaching reading, developing play, attention and concentration skills, higher order thinking and so on. This year we would like to draw particular attention to how teachers and schools are interpreting the meaning of 'developmentally appropriate' which is the rationale that underpins the design, planning and implementation of the Enriched Curriculum. This issue was always bubbling underneath the surface, and it has become more prominent this year as the children we are tracking have progressed through the primary years to the end of KS1 and the beginning of KS2. Also, as the project has scaled up and included 12 new schools (in one sweep), this issue may not have been as fully discussed and debated as it was with the core group of teachers and schools who were in the first groups.

School factors affecting pedagogy

One of the biggest differences apparent to the research team between schools is in the way they have approached the Enriched Curriculum. The evidence for this difference is often made apparent through soft data, such as informal classroom observation, but it is also partly from interview data. In some schools, the beliefs and practices associated with the Enriched Curriculum have become part of the culture of the entire school. These schools have not always incorporated every detail of the original

project into their pedagogy but they have abstracted the most important aspects of it, such as tailoring the work to the child's level of understanding in every year group, rather than being constrained by a content-driven curriculum. This does not mean that these schools are not careful about the curriculum content⁷, rather that they see it as something to strive towards with the weaker children and to overtake with the stronger ones. Such schools have learned a very great deal from the project and have been able to use it to improve the experience of every child in every class. The following exchange illustrates how a typical teacher in one of these schools feels about the project and how she believes that there are positive outcomes which may not be easy to measure.

Researcher: Do you feel there is a culture [of the Enriched Curriculum] within this school?

Teacher: Yes, there is a culture within this school. Towards the end of the first year of the Enriched Curriculum I explained all the philosophies and the teachers were invited down to my classroom. They did end up with a really good understanding of the Enriched Curriculum. We have a culture in this school, we moved away from workbooks a long time before the Enriched Curriculum started, we were working with the children in a very practical way.

Researcher: The bottom line is that the Enriched Curriculum is costing a lot of money and it's maybe not enough that the children have the same attainment as before.

*Teacher: This is more, this **is** more. There is a definite change. The skills these children are learning here are for life. These children are taking a lot of things on board and people skills, they can apply these further on up the school and in life. It is preparing them for life. They are not robots; they are individuals. I can have a conversation with these children without having to come down to their level.*

In other cases, it is apparent that some schools may not have fully appreciated that the Enriched Curriculum is a developmentally based curriculum which recognises that pedagogy should be governed more by a readiness for learning a given concept than by age. The staffs in these schools tend to view the EC in terms of rules and procedures, predominantly prescriptive in nature, which apply to early-years classes only. Whatever the mechanisms of formulating their approach to the curriculum, it is clear that teacher confidence is best supported when developmentally appropriate

⁷ Great efforts have been made to make the framework document a process oriented curriculum but this is read by teachers as having implied content, especially when seen in the context of the end of KS1 assessment units.

practice is applied in a way which is in accord with their professional knowledge and judgements.

We do not mean to suggest that there is a single ‘right’ interpretation of developmentally appropriate practice, except to say that the meaning and implications for teaching should be discussed and debated in an open-minded way in order to enrich teachers’ understanding. Getting a better understanding will help teachers make decisions on more detailed aspects of children’s learning (e.g., teaching reading, introducing spellings – see later).

Central Direction and Teacher Guidance

A centrally specified written framework for the Enriched Curriculum is now in place. The evaluation team are aware that a lot of dedicated work has gone into developing teacher guidance to support the framework and getting it right. However, this work needs to be made available to teachers and schools as soon as possible, even if it is incomplete or needs to be refined later. Further, if principals and teachers do not perceive central support for the curriculum and detailed guidance on particular aspects, the curriculum is in danger of losing its momentum regardless of any positive findings that may come to light.

It is crucial for future confidence of principals, parents and teachers in the Enriched Curriculum and for its continued refinement that there is seen to be a clear commitment to it at the top level of authority. Already, the evaluation team are hearing reports from teachers that they have spoken to colleagues in other schools who believe that the Enriched Curriculum ‘didn’t work’. Further, in a small number of Enriched Curriculum schools, the morale of staff has suffered greatly as they believe that insufficient value has been attached by external authorities to their views and expressed difficulties.

Teacher guidance on teaching reading

A reported limitation on the teacher guidance for literacy teaching is that the notes provided do not sufficiently specify a structure for teaching, especially after the foundation stage. Some teachers are very confident in their own ideas about literacy pedagogy and are not troubled; other teachers have less confidence in their own skill

and feel that the notes are insufficient. In this respect, the Enriched Curriculum probably supports teachers less well than the pre-existing curriculum.

In terms of the content of the curriculum, parental survey and interview evidence has indicated that some teachers may have postponed aspects of the curriculum for longer than was intended. Spelling is a prime example. There is great diversity in the time at which teachers report introducing spellings. To a degree this may be appropriate, being based on the children's rates of progress, but there is also evidence from parents and some teachers that higher ability children have not been introduced to spellings as soon as they might have been. A guideline should be set for teachers as to when spellings should be introduced, related to the individual's reading level rather than to curriculum content at any given time. In mathematics too, tables must be introduced when appropriate to promote automaticity in number work. Further, Year 3 and 4 teachers need to get guidance on introducing children to formal mathematical notation and representation. It appears that some teachers have been so keen to avoid workbooks, that children may not get sufficient practice with a variety of formats.

It is not unusual for school systems to encounter these issues when they embark on a more developmentally appropriate curriculum. For example, in the US in 1998, a joint statement was issued by the International Reading Association and the National Association for the Education of Young Children entitled, *Learning to Read and Write: Developmentally Appropriate Practices for Young Children*. At the end of the statement, they make the very important point that:

“to teach in developmentally appropriate ways, teachers must understand *both* the continuum of reading and writing development *and* children's individual and cultural variations. Teachers must recognise when variation is within a typical range and when intervention is necessary, because early intervention is more effective and less costly than later remediation. (National Association for the Education of Young Children, 1998, p. 11)

Teacher professional development and the dissemination of ideas

In the process of helping teachers to apply the principles of the Enriched Curriculum, it is important that trainers model practices appropriate for *adult* learning – or ‘practice what they preach’. Just as teachers start with what the child already knows

and believes, training staff can usefully take into account the beliefs and practices of the teachers and the culture of the schools in which they work. Teachers come to the project with a spectrum of approaches to pedagogy, ranging from some whose practice already closely approximates recommended EC practices to those who are more naturally inclined to a structured and traditional approach. This latter group of teachers feel very deskilled and anxious when they leave that formal framework behind. Fullan and Stiegelburger (1991) have emphasised the importance of allowing sufficient time for change to take place, typically over a period of years. It is also worthwhile to recall that Year 3 and Year 4 teachers coming into the project are not likely to be volunteers, another reason for a slower pace of change if those teachers have been wedded to a very formal approach. Research studies show that faster progress will be made if teacher concerns are listened to and seriously addressed (*ibid.*). In terms of modelling good practice for teachers, videos are especially useful in this teacher education process. Videos of shared reading and guided reading sessions are being prepared jointly by the Northern Ireland Council for the Curriculum Examinations and Assessment and the Inter-Board Literacy Group. Their dissemination to teachers should be a matter of urgency.

The expansion of the new curriculum has brought us into contact with a number of student teachers in initial teacher training programmes and teachers in their probation year. It is becoming evident that authorities need to consider how this new generation of teachers may be best prepared for the demands of a developmentally appropriate early-years curriculum.

In summary then, the evaluation team considers that the Enriched Curriculum project is at a crucial stage of its development as it begins to scale up – in terms of ‘rolling upwards’ through the key stages of the curriculum and ‘rolling outwards’ to new schools. Actions are required in terms of key principles and teacher guidance, if the potential is to be fully realised. In the context of the longitudinal design of the project and ‘waiting for results’, parent, teacher and principal confidence in the Enriched Curriculum may start to falter. These stakeholder groups are greatly influenced by central decision-making concerning the Enriched Curriculum’s status and future viability. The likely effect of delay is loss of confidence and curriculum drift.

9. Summary and recommendations

With the expansion of the project to an additional twelve schools, making 24 in all, the evaluation team have been able to confirm some of the earlier hypotheses and findings about the implementation of the Enriched Curriculum and to report new findings. Approximately 1650 children are now participating fully in the evaluation, with the full sample doing only the selection of the tests and measures that are less costly to administer, mark and analyse.

- The main findings about patterns of attainment in mathematics and reading have been confirmed in the augmented sample. The pattern is virtually identical to that reported in the End-of Phase 1 Report. The EC children's reading and mathematics attainment is depressed relative to the controls in the first two years of primary school. They begin to improve in Years 3 and 4, such that there are no statistically significant differences between them at Year 4.
- Although the data for Year 5 (first year of Key Stage 2) are currently confined to the Shankill schools (and limited in ways previously described), the upward trajectory reported last year for higher ability children is still evident but not statistically confirmed.
- With regard to additional measures of literacy, there is some evidence from the tests of written expression that EC mainstream children have benefited relative to the control children. This confirms previous findings from the EC Shankill children. In addition, using a new test of print exposure (the Book Title Test), there are some indications that EC children are more knowledgeable about books than would be expected for their age group.
- Children from Shankill schools are performing at similar levels in mathematics and reading attainment to other children with similar levels of ability and from similar backgrounds. This is an important finding, given the level of social unrest in the area during the lifetime of the evaluation.
- Previous findings about general factors that affect attainment have also been confirmed. For both EC *and* control classes, month-of-birth influences both reading and mathematics attainment, with older-born children performing

better. The effect is larger for mathematics. There are no differences between boys and girls in mathematics attainment, but girls outperform boys in reading. The effects of month-of-birth and gender are cumulative, leaving younger-born boys at a particular disadvantage for reading. Social economic background variables (indexed by free school meals) have important influences. These can be mediated in several ways; through the cognitive and social resources that individual children bring to school but also through peer effects. For example, the evaluation has identified that the average ability in the class (the peer effect) can influence attainment beyond a child's individual ability.

- Eighty-seven teachers who are teaching the EC curriculum have now been surveyed and/or interviewed. They include Y1, Y2, Y3, Y4 and Y5 teachers. The pattern that was previously identified with regard to teachers' views and experiences of the EC curriculum has been largely confirmed. Foundation Stage teachers, (Y1 and Y2), report more positive views and experiences than Y3 and Y4 teachers. However, a new finding is the upsurge in positive views expressed by Y5 teachers - the first year of KS2. As yet, this sample is small and will need confirmation as the main cohort of EC children progress into KS2.
- Teaching reading remains the main concern in Years 3 and 4.
- An issue that has become more prominent this year has to do with the understanding and interpretation of a 'developmentally appropriate curriculum' as children progress from Foundation Stage, through KS1 and KS2. This issue is discussed more extensively in the next section.
- The parents' sample now consists of over 600 parents of children participating in the EC curriculum. The overwhelming majority express positive views about the curriculum and the perceived effects on children's learning. A small minority continue to have reservations and express more negative opinions. Their concerns often rest on the risks of being at the forefront of an educational innovation and being unsure about whether their *individual* children will benefit or not.

Recommendations

We believe that the following actions need to be taken:

By those responsible for central policy and implementation:

1. Available teacher guidance should be distributed without delay. This should include video guidance. If there is further work to be done in refining the guidance, this should not be a reason for withholding the material that has already been prepared.
2. There should be an agreed framework for teaching reading, allowing flexibility for developmental appropriateness, but specifying the core aspects of teaching reading; emergent literacy experiences, phonological awareness and letter knowledge, a systematic programme for decoding strategies (including phonics), promotion of pleasure in reading, increasing vocabulary, reading for understanding and becoming fluent, developing independent reading practices and preferences, together with the interrelationships between reading, spelling and writing.
3. There should be an agreed framework for the teaching of mathematics. Again this should allow for flexibility and developmental appropriateness, but can recommend the order in which concepts are presented and specify the balance between concept development through activity-based learning and the importance of practice using a range of mathematical notation and mathematical language as and when children become able.
4. Ideally, Key Stage 2 teachers should receive more information about the ways in which EC children have been taught in Key Stage 1 and how their stage of the curriculum can be adapted both to accommodate and to build on the experiences of EC children.
5. Enriched Curriculum principles and practices need to be merged with the more general changes and training materials that will accompany the introduction of the Revised Northern Ireland Curriculum. In relation to the forthcoming changes, it should be borne in mind that all our previous reports have drawn attention to the central importance of making available sufficient resources and training to implement developmentally appropriate practice successfully. It is appropriate also to remember the success of teacher cluster groups in this context.

6. A short document based on the findings of the evaluation should be distributed to all teachers in Northern Ireland.

For Schools

In order for a school to get the best out of the Enriched Curriculum, we recommend the following strategies:

7. The staff should be encouraged to see the principles of the Enriched Curriculum as a whole school project - which will impact on every teacher and every child.
8. There should be clear, proactive leadership from the principal and senior management, demonstrating confidence in the Enriched Curriculum and support for its implementation. Senior staff should visit classrooms as often as is feasible and monitor progress.
9. The school should have a short written plan for implementing the Enriched Curriculum at all levels, making links with Key Stage 2.
10. There should be arrangements for formal dissemination of ideas and experience of training between teachers within and across schools, for example through staff training days. Articulation of and reflection about practice appear to be important for change (Moyle, Adams and Musgrove, 2002). Informal dissemination of ideas should also be encouraged.
11. There should be peer coaching for teachers who are new to an Enriched Curriculum school or are having difficulties implementing the Enriched Curriculum.
12. Teachers should be advised to reflect on their practice frequently, both formally and informally. They should be encouraged to video themselves privately and to use the videos to improve their practice.

References

Carr, M. and Glaxton, G. (2002). Tracking the Development of Learning Dispositions. *Assessment in Education: Principles, Policy & Practice* 9, 1, 9-37.

Daly, A. (2000). *Print exposure in eight-to-eleven year old children: Measurement and Prediction*. Unpublished PhD thesis, Queen's University Belfast.

EPPI (2004). *A systematic review of pedagogical approaches that can effectively include children with special educational needs in mainstream classrooms with a particular focus on peer group interactive approaches*. Prepared by the SEN group supported by the Teacher Training Research Agency.

Available at

http://eppi.ioe.ac.uk/EPPIWebContent/reel/review_groups/TTA_SEN/TTA_SEN_rv1/TTA_SEN_revie_w1.pdf

Fullan, M. & Stiegelbauer, S. (1991). *The New Meaning of Educational Change*. London: Cassell.

Moyles, J., Adams, S. & Musgrove, A. (2002). SPEEL: *Study of pedagogical effectiveness in early learning*. Published by DfES, UK. Available online from the DfES website.

National Association for the Education of Young Children (1998). Learning to Read and Write: Developmentally Appropriate Practices for Young Children. *Young Children*, 53(4), 30-46.

National Foundation for Educational Research (2005). *A review of Literacy Initiatives to inform advice on the Foundation Stage*. Review produced privately for CCEA.

OECD PISA STUDY (2000). *Reading for change*. Available from http://www.pisa.oecd.org/pages/0,2987,en_32252351_32235731_1_1_1_1_1,00.html

Pupil Attitudes to Self and Schools (PASS) <http://www.pass-survey.com/>

Skrondal, A. & Rabe-Hesketh, S. (2004) *Generalized Latent Variable Modelling: Multilevel, Longitudinal, and Structural Equation Models*. Chapman & Hall/CRC Boca Raton, Florida

Snow, C., Burns, M. & Griffin, P. (Eds.) (1998). *Preventing Reading Difficulties in Young Children*. Washington: National Academy Press. Several chapters in this book are pertinent.

Sproule, L., McGuinness, C., Trew, K., Rafferty, H., Walsh, G., Sheehy, N. & O'Neill, B. (2005). *The Early Years Enriched Curriculum Evaluation Project: Final Phase 1 Report*. Report produced for Northern Ireland Council for the Curriculum Examinations and Assessment.

Appendix A

Dealing with attrition in our longitudinal participant samples

The nature of the problem

Attrition or drop-out is inevitable in any longitudinal sample and occurs for many understandable reasons – children move away from the area, they change school, they are absent at the period of testing, they are withdrawn from the study either deliberately or inadvertently through not complying with explicit consent forms (the emerging issue for our sample). The longer the time a study runs, the greater the associated risks of dropout. The recommended strategies for dealing with attrition are:

1. Adequate sample size in the initial cohort, not just to guarantee statistical power to make judgements at any one point in the study, but also to take possible attrition into account. EYECEP was not originally conceived as a longitudinal study.
2. Monitoring samples at each data collection point to find out if attrition is random or non-random – dropout is very rarely completely random. The representativeness as well as the size of the sample then becomes important.
3. Developing strategies to maintain contact and ‘good’ relations with the sample. In the case of a longitudinal sample of school children who are accessed through schools, co-operative relations have to be maintained not just with the children, but with parents, class teachers, school principals and other stakeholders who might influence the availability of the sample for testing.
4. Finally, providing both the size and the representativeness of the sample has been *reasonably* maintained, statistical analyses can tolerate ‘missing data’ and modern statistical packages for multivariate analyses can provide reliable estimates. But there are limits to the extent to which this technique can be used.

We describe below our strategies for minimising the problem and dealing with its effects.

Strategies for dealing with the problem

The sample size

The question of sample size has been at the forefront of most of our proposals and contract negotiations. It should be remembered that the unit of testing has been half the children in a class not the full class. During the early part of Phase 1 of the project (2001 to 2005), sample size was limited by CCEA for cost reasons. Given the increasing importance of our findings in the light of curriculum review, in the new contract (2005-2007), CCEA have recognised that more extensive testing at the level of the class (as well as a larger sample of schools, second cohorts and so on) will establish whether our earlier findings can be said to be representative of all EC schools.

Gaining parental permission.

During the earlier years of the study, parents were informed about forthcoming testing and were given the opportunity to withdraw their child from the study. As we indicated in our report, ethics committees now require that research teams ask parents to opt in to a study rather than merely opt out. However, 2004-2005 was *not* the first year we used such individual parent permission slips. But for 2004-2005, on the advice of our ethics committee, we did change the wording to include a more specific opt-out statement, and this seemed to have had a negative effect⁸.

However, we should also comment that some class teachers and school principals are not entirely happy about specific permission slips and that has complicated return rates (see below).

During the end-of-year testing (May/June 2005), we did not fully recognise how the combination of permission slips *and* other sources of attrition was impacting on sample size until after the testing period. The effect was also uneven: it was more evident in some schools than others, and seemed to impact on the EC classes rather than on year-ahead controls, where the sample size was hardly affected at all.

In the light of our experience, we have rewritten our permission slips to give parents more information (see the summary below).

The degree of attrition over the first five years of the project

However, given that the original cohort size of the EC Shankill sample was 79 at baseline, we still have 75% of the original sample (59/79 children) after 5 years. Given the absolute numbers involved, this is not a serious threat to the integrity of the sample *at this stage* and can be dealt with through estimating missing data points, when a fuller set of Year 5 data is collected from the other schools. This is the reason why we mentioned in Section 2 that some data would only become fully meaningful in future years. In addition, we are tracking a second cohort of 85 EC children in the Shankill.

However, it does sound a warning about attrition in general and that is why we expressed concerns in this report. We have put in place a number of strategies listed below.

CCEA's role in helping to maintain sample size

Recognising the importance of maintaining good relations with schools and parents, we have been working closely with CCEA (through Marilyn Warren) to gain more explicit co-operation from principals and class teachers for the new phase of the project. In particular, we have advised CCEA to formally thank schools for their previous participation and to invite them to give explicit written consent to being involved in the next phase of the evaluation. This will give more authority to the evaluation team and the inevitable demands that we make on schools – taking children out of classes, identifying particular children to be tested, chasing permission

⁸ It was counteracted to some extent by measures taken to trace children who had moved from one Enriched Curriculum school to another and changed name at the same time.

slips and so on. We have also sought CCEA's advice on drafting both information letters to parents and permission slips.

It should be recognised that each year when the evaluation team contacts a school we do not encounter a 'neutral' environment. The more general fortunes of the project – how well the training is going, how supported the schools feel, how successful the enriched curriculum is perceived – these all impact on how we are received. The research team and their field workers have successfully handled several sensitive situations.

Although we are external evaluators, the importance of CCEA's support and authority cannot be overstated - from the point of view of gaining full co-operation from schools.

Is there a real impact on the quality of the evaluation?

We have made clear the risks that sample attrition **from a variety of sources** for a longitudinal study, especially one that will stretch over 7 years eventually – and that was not initially designed with such a timeframe in mind. We do not have control over some sources of attrition. For those that we do, we consider responses are required at three levels – schools, parents and children. In summary, these are as follows:

1. CCEA can support the evaluation team in order to gain maximum co-operation in schools.
2. With regard to gaining parental permission, we are confronted with conflicting ethical demands – gaining full consent from parents with regard to their child's participation in a research project, and doing high quality longitudinal evaluation research based on public funds. We have developed several strategies to deal with this
 - a. In schools where principals are not entirely happy about individual permission slips, we are creating a 'consent paper trail' in order to satisfy the requirements of our ethics committee about parental consent (this is currently being negotiated with the ethics committee).
 - b. Presuming that parental permission slips are inadvertently not returned, we are devising strategies that might 'remind' both parents and children to bring them back, e.g., letters to parents on coloured paper, small rewards for children (e.g., Enriched Curriculum 'Well Done' pencils).
3. Finally, with regard to more general sample drop out, we are putting in place a 'substitution' policy for Phase 2 of the evaluation, from children in the portion of the class that have not yet been included in the evaluation sample. This is not entirely satisfactory as it breaks the longitudinal 'thread' over 7 years. However, it will maintain sample size at each time point and protect Phase 2 from the impact of attrition at Phase 1. In other words, we would have two mini-longitudinal projects, Years 1-4 and Years 5-7 with substantial overlap between the two samples (checking that the representativeness of the two samples are similar). We will begin to adopt this testing strategy immediately to protect against attrition, but it is a fall-back position and we will vigorously pursue the previous strategies to maintain the 7-year longitudinal sample. For

the Shankill wave first cohort, this strategy can only be adopted for Years 6 and 7, as they are one year ahead of the bigger sample.

Finally, our method of analysis will use all the available data to best advantage (See Appendix B).

Appendix B

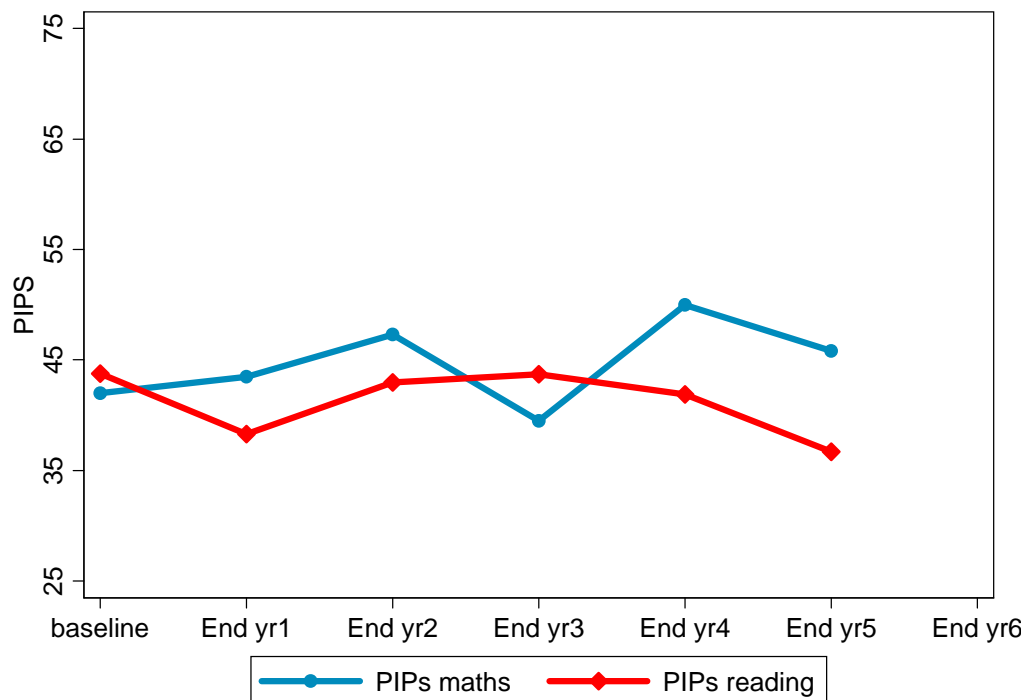
Description of the multilevel model (including presentation of coefficients and associated standard error)

The model specification

The impact of the EC on the pupils who are taught this new curriculum is measured by the difference in educational outcomes they achieve under this new regime and the outcomes they would have achieved under a different curriculum. That is, we measure the impact of the new curriculum as the *incremental* difference in outcomes expected for pupils being taught under different regimes.

An important component of measuring the effect of the EC is that the curriculum may have a changing impact over time. Indeed the true effect of the curriculum change may be intended to last well beyond the time frame of the evaluation and so it is important that the time-limited evaluation has an explicit attempt to incorporate a time dimension in its analysis. Figure 1 shows the progression over time of individual in terms of their age-correct PIPS mathematics and reading scores.

Figure 1: Academic Progression of an Individual Pupil over Time



The figure shows the results measured at time points year 0 (baseline), end of years 1, 2, 3, 4 and 5 in both mathematics and reading. This particular individual shows a fairly stable journey over time with some variation – for example an apparent blip in mathematics results recorded at the end of year 3. The objective of the analysis is to identify what this path would have looked like under a different curriculum regime, attempting to separate out random variation and that which is systematically related to the choice of curriculum, and hence identify what the incremental difference would be (in fact this individual experienced the EC and so the trajectory/path we would want

to consider this actual path against is what the individual would have achieved under the traditional curriculum.)

The analysis adopts a quasi-experimental design which ensures that we obtain observations under regimes between comparable groups. Specifically, *we compare the progress of EC intervention group children with control children attending the same school, often with the same teachers and certainly within the same school culture.* The control group children are one or two years older than the intervention children and so experienced the traditional pedagogy but in the same classroom context in all other respects. This method has also the advantage that it will pick up any trends in the data over time, if for example there is some creeping implementation of the new curriculum that affects outcomes.

In the first year of the project, a random sample of half of each intervention and control class was tested at baseline and the end of the first year. There were nine classes in six inner city schools (for each group $N \geq 84$). As the project continued, the sample size has expanded in terms of both numbers of children and numbers of schools, such that there are now 953 EC children and 697 controls in 24 schools. This includes **data from four cohorts**, from the first two EC cohorts and control data from the two cohorts immediately preceding the introduction of the EC. Due to the requirements of the funding body, the alternate half sample has also been tested at different times from the original sample. Thus, very few children have generated data at each wave of testing, though importantly, missing results are a function of the experimental design rather than any self-selection mechanism. In these circumstances, one of the great strengths of using multilevel models estimated using maximum likelihood is that it allows us to make use of every piece of test data.

Whilst the data provide the means of estimating the effect of different curricula, the actual statistical model used is further underpinned by the application of a simple theoretical economic model, Human Capital Theory (HCT). HCT conceptually formulates education as an investment by which individuals, given their initial stock of characteristics (genetic, IQ, parental input and capital) may improve their expected outcomes over time. The observed educational outcome at any point in time will be a function of an individual's characteristics and of the education they receive. As such there is a rationale for gearing the statistical model towards understanding the impact of an individual's characteristics as well as that of the different curricula. The rationale for including individual characteristics is heightened if we wish to consider how the impact of different curricula may systematically differ across different sub-groups of the population.

The principle components of the model are:

- Pupils are clustered within schools.
- Multiple observations are obtained for many pupils over time.
- Allocation to EC or control groups is exogenous.
- Whether an observation is observed at a time point is exogenous (i.e. there is no systematic pattern to missing data)

Thus the model chosen is the multivariate random effects (intercept) difference-in-difference with three levels. Level one identifies the time period, level two identifies

the pupil and level three identifies the school. Random effects are estimated at pupil and school level.

Main predictor variables

These variables are entered in to the model because previous research and/or correlational data suggest that they are important predictors of outcomes.

Individual pupil level variables

Gender

Month of birth

Developed ability category (low, medium or high IQ)

Random individual effect (essentially, what we cannot account for in the individual's performance)

EC or control

School/class level variables (school and class are the same when there is only one class per year group)

Percentage of free school meals in the school

Mean developed ability of the class/school

Random school effect (essentially, what we cannot account for in the schools performance)

Time

Time is entered as discrete data points (whole numbers for end of year testing and appropriate half numbers for February testing).

IQ interaction variables – showing the effect of IQ at each time point

In Table 1 below, the estimated coefficients on variables such as *IQLyr1* or *IQMyr3.5* show the estimated deviation from their baseline at that particular time point for an individual in that particular time period, where the number denotes the number of years which have passed since baseline. *IQ*L refers to the low IQ group (IQ < 45 PIPS points⁹) and *IQ*M to the medium group (IQ = 46-55) to and so on. Thus if an individual pupil from the medium IQ group had a baseline score of 48 and the estimated coefficient attached to *IQMyr3.5* was estimated to be -3,0 then the expected PIPS score for that individual at Feb Year 4 under the conventional curriculum would be 45. These variables are **not** showing the effect of the enriched curriculum

EC interaction variables – showing the effect of the EC at each time point

The estimated coefficients on variables such as *IQLyr1EC* or *IQMyr3.5EC* show the estimated incremental effect of the Enriched Curriculum – the substantive focus of the estimation. These estimated coefficient represent the difference that a pupil is expected to achieve between being taught the conventional curriculum and the Enriched Curriculum. Positive values indicate that pupils have a higher expected outcome under the Enriched Curriculum; negative values indicate that a higher expectation would be achieved under the conventional curriculum. Statistical significance of these coefficients in a regression model indicates a statistically significant difference between outcomes.

⁹ Remember PIPS is a 50 ± 10 scale. The Low IQ group is equivalent to an IQ below 85 on the conventional IQ scale, Medium is equivalent to 86 to 115 etc.)

Results

Table 1 below shows the estimated models, listing the variables with their estimated coefficients and the associated standard errors, significant coefficients are highlighted in bold. The models were estimated using the GLLAMM command in Stata 8.

A fuller technical description of the model and its rationale is contained in the Year 5 technical supplement.

Note that, at the bottom of the table, the measured variability in school scores is small compared with the variability in individual pupil scores.

Main effects are the effects of variables irrespective of whether the child is in the EC or control groups. These effects are noted and discussed in the main body of the report.

In Table 1 the effect of the Enriched Curriculum, after taking account of other significant predictor variables, lies in the variables with EC in the variable name. For example, *IQ_Lyr4EC*, denotes the effect of the Enriched Curriculum in Year 4 in the low IQ group. Bold type indicates a statistically significant result.

Table 1. Multi-Level Model Regression Results					
Variable names containing EC denote Enriched Curriculum effects			BOLD type indicates a statistically significant result		
Variable name	Variable information	Effect on PIPS Reading score		Effect on PIPS mathematics score	
		Coefficient	Std error	Coefficient	Std error
Constant term		36.77	7.37	16.75	6.29
Main effects on both EC and controls					
IQL (Low IQ)	Children's IQ <45	-6.35	0.77	-5.61	0.68
IQH (High IQ)	Children's IQ >55	5.80	1.07	6.98	1.00
Gender	Being a boy	-3.15	0.35	-0.59	0.31
Month of birth	Per month	-0.14	0.05	-0.25	0.04
School % FSM	Per % point	0.02	0.04	0.04	0.03
School mean IQ	Per PIPS point	0.33	0.13	0.66	0.12
Inner city	Shankill school or not	-1.20	1.79	0.88	1.40
Interactions with time Low IQ group					
IQLyr1	End Year1vs baseline	-4.21	0.92	-2.20	0.85
IQLyr2	End Year2 " "	-1.94	1.17	-2.26	1.06
IQLyr3	End Year3 " "	-2.26	0.95	-2.16	0.86
IQLyr3.5	Mid Year4 " "	-1.33	1.88	-2.09	1.71
IQLyr4	End Year4 " "	-1.69	0.65	-1.17	0.59
IQLyr4.5	Mid Year5 " "	-1.34	1.18	-4.06	1.07
IQLyr5	End Year5 " "	-0.91	1.58	-1.49	1.44
IQLyr6*	End Year6* " "	-6.88	1.08	-2.89	0.99
IQLyr1EC	Year1 EC vs. control	-1.85	1.21	-1.85	1.09
IQLyr1.5EC	Year2 EC vs. control	-10.18	2.51	-9.48	2.27
IQLyr2EC	Year2 EC vs. control	-2.13	1.25	-3.76	1.13
IQLyr2.5EC	Year3 EC vs. control	-8.74	1.14	-7.94	1.03
IQLyr3EC	Year3 EC vs. control	-1.29	0.99	-2.11	0.89
IQLyr3.5EC	Year4 EC vs. control	-2.16	2.11	-2.32	1.93
IQLyr4EC	Year4 EC vs. control	-1.55	0.85	-0.80	0.76
IQLyr5EC	Year5 EC* vs. control	-2.05	1.82	-1.79	1.65
Interactions with time Middle IQ group					
IQMyr1	End Year1vs baseline	-3.13	1.12	-1.16	1.02
IQMyr2	End Year2 " "	-1.66	0.84	-2.65	0.76
IQMyr3	End Year3 " "	-2.50	0.75	-2.56	0.69
IQMyr3.5	Mid Year4 " "	-3.08	1.08	-3.31	1.00
IQMyr4	End Year4 " "	-2.07	0.65	-1.03	0.59
IQMyr4.5	Mid Year5 " "	-1.47	1.11	-3.21	1.01
IQMyr5	End Year5 " "	0.22	0.97	1.20	0.90
IQMyr6*	End Year6* " "	-5.87	1.06	-1.12	0.96
IQMyr1EC	Year1 EC vs. control	-3.42	1.28	-2.23	1.17
IQMyr1.5EC	Year2 EC vs. control	-9.20	1.20	-8.64	1.09
IQMyr2EC	Year2 EC vs. control	-5.47	0.87	-3.06	0.79
IQMyr2.5EC	Year3 EC vs. control	-4.61	0.94	-3.13	0.86
IQMyr3EC	Year3 EC vs. control	-1.66	0.75	0.42	0.67
IQMyr3.5EC	Year4 EC vs. control	-1.82	1.53	-1.08	1.39
IQMyr4EC	Year4 EC vs. control	-0.48	0.75	-0.43	0.69
IQMyr5EC*	Year5 EC* vs. control	-3.32	1.40	-2.20	1.27
Interactions with time High IQ group					
IQHyr1	End Year1vs baseline	-4.07	2.22	-3.58	2.02
IQHyr2	End Year1vs baseline	0.13	1.30	-2.50	1.21
IQHyr3	End Year2 " "	0.68	1.16	-2.14	1.07
IQHyr3.5	End Year3 " "	2.05	1.42	-4.28	1.32
IQHyr4	Mid Year4 " "	0.57	1.16	-1.16	1.08
IQHyr4.5	End Year4 " "	-1.66	2.89	-2.90	2.76
IQHyr5	Mid Year5 " "	3.51	1.28	-0.72	1.18

IQHyr6*	End Year5	-4.84	2.01	-3.89	1.88
Table 1 continued					
Variable name	Variable information	Effect on PIPS Reading scores		Effect on PIPS mathematics scores	
Interactions with time High IQ group		Coefficient	Std error	Coefficient	Std error
IQHyr1EC	Year1 EC vs. control	-3.87	2.46	-2.99	2.24
IQHyr1.5EC	Year2 EC vs. control	-7.28	1.69	-8.64	1.55
IQHyr2EC	Year2 EC vs. control	-7.61	1.16	-4.73	1.07
IQHyr2.5EC	Year3 EC vs. control	-3.46	1.39	-0.45	1.28
IQHyr3EC	Year3 EC vs. control	-4.16	1.00	0.49	0.91
IQHyr3.5EC	Year4 EC vs. control	-4.32	4.70	-1.01	4.31
IQHyr4EC	Year4 EC vs. control	1.64	1.27	-0.12	1.17
IQHyr5EC*	Year5 EC* vs. .control	4.45	6.05	7.45	5.14
		Variance			
σ_v^2 (school re)	School level variability	2.32	0.97	1.34	0.59
σ_ζ^2 (pupil re)	Pupil level variability	30.44	1.64	24.78	1.38
σ_ε^2 (error term)	Error variance	26.05	0.84	21.92	0.70
<i>Model goodness of fit indicating that the model explains the data well</i>					
log-likelihood		-11367.72		-11053.60	
* Result applies to Shankill data only at this stage					