

AGE OF STARTING SCHOOL AND THE EARLY YEARS CURRICULUM

A SELECT ANNOTATED BIBLIOGRAPHY

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Introduction

This bibliography highlights research on some key questions related to age and learning, including: when do children start school, when should they start, and what kind of programme is best suited to their needs? It was not intended to question whether attending high-quality pre-school provision is beneficial to children, but rather what type of curriculum is most appropriate for young children of different ages. For this reason, studies showing the effects of pre-school education on children's later progress (e.g. evaluations of *Head Start* programmes in the USA) have not been included. It is also important to point out that the bibliography does not include studies of the role of parents in early education (for an overview of studies in this field, see White *et al.*, 1992).

The bibliography is divided into three main sections, as detailed below.

- 1. International comparisons**
- 2. Starting school in England and Wales**
- 3. Early experiences - later effects**

Some studies contain information relating to more than one area: each study has been placed in the section which best reflects the main issues addressed.

A full set of references is provided at the end of the bibliography.

1. International comparisons

The studies included in this section address two main issues from an international perspective.

- Does an earlier school starting age help children to achieve?
- Should some children be able to start school later?

1.1 Age of starting school and attainment

MILLS, C. and MILLS, D. (1998). *Britain's Early Years*. London: Channel 4 Television.

This report describes the results of an investigation into early childhood teaching methods in three countries (Hungary, German-speaking Switzerland and Flemish Belgium). The project was funded by the Gatsby Foundation and accompanied a Channel 4 television programme in the *Dispatches* series.

The report is polemic in nature, arguing that the curriculum offered to three- and four-year-olds in the UK is inappropriate, and that this accounts for the relatively poor standing of the UK in international studies of children's performance. The authors identify 'an almost identical approach' to early childhood education in all three countries visited. The curricular approaches emphasise the following areas: attention (e.g. teaching appropriate use of eye-contact), listening and memory skills; appropriate group behaviour; conceptual understanding (e.g. size, space, quantity, time); phonological skills and motor skills. There is a strong emphasis on spoken language and numeracy; but reading, writing, and written mathematics are not taught as part of the pre-school curriculum. It is believed that some pre-school children are developmentally unable to attempt these abstract skills and that, if made to do so, they would experience a sense of failure. When children enter primary education (at around the age of six) their reading, writing and numeracy skills are observed to develop rapidly.

It is suggested that by neglecting oral language and by introducing abstract tasks too early, British practice is contributing to under-achievement. The authors recommend

introducing approaches similar to those in the countries visited, making school-starting policies more flexible to enable some children to spend additional time in pre-school, and extending the pre-school period to the end of Year 1 (i.e. the age of six).

ELLEY, W.B. (1992) *How in the World Do Students Read? IEA Study of Reading Literacy*. The Hague: The International Association for the Evaluation of Educational Achievement.

In 1990-91, the International Association for the Evaluation of Educational Achievement (IEA) conducted an assessment of reading standards in 32 educational systems, not including the UK. Reading tests were administered to the grade levels of nine- and 14-year-olds: about 1,500 to 3,000 pupils were assessed per country.

The results revealed that Finland had the highest reading levels at both nine and 14 years. Students in the USA performed well at age nine, and those in Sweden, France and New Zealand performed well at age 14.

Most of the countries began formal reading teaching when children were aged six. However, four countries began teaching reading at age five, while eight did not start formal teaching until the age of seven. An analysis of the relationship between reading attainment and age of starting reading instruction showed that there was little apparent disadvantage from a later start. The ten highest-scoring countries began teaching reading at a mean age of 6.3, and the lowest ten at 5.9 years. Finland, Sweden, Norway and Iceland all began instruction at age seven, and all were in the top ten scoring countries.

However, some of the countries with later school-starting ages were also among those with the greatest economic and social advantages, as measured by a Composite Development Index (CDI). When each country's attainment in relation to the CDI was taken into account, the relationship was reversed: the top ten countries had a starting age of 5.95 years, compared with 6.40 years for the ten lowest-scoring countries. Nevertheless, the author comments that

countries where children started school at seven had largely caught up with the 'earlier starters' in reading attainment by the age of nine.

1.2 School readiness and retention

PRAIS, S.J. (1997). *School-Readiness, Whole-Class Teaching and Pupils' Mathematical Attainments* (Discussion Paper No.111). London: National Institute of Economic and Social Research.

Based on a comparative study of schooling in England and Switzerland, this paper presents an argument for more flexibility in age on entry to school. The study was prompted by concern about the 'long tail' of under-achievement in English children's mathematics attainment.

Comparisons were made between the age-ranges found in English and Swiss classes. While almost all children in English classes contain children born within the same academic year, classes in the Canton of Zurich were found to contain over one in five older children. Some of these older children had repeated a year at primary school, but most experience delayed entry to school because their pre-school teachers consider that they were not ready for school and would benefit from spending additional time in kindergarten.

A basic arithmetic test, devised by the author, was administered to nine- and ten-year-olds attending mixed ability classes in each country. The results from 200 pupils in nine Year 5 classes in Barking and Dagenham were compared with those of 65 children in three classes in Zurich. The Swiss children performed better on the test although they were about a year younger and had entered school a year later. The variability in pupils' attainment within the English classes was about twice that of the Swiss classes. There was also considerable within-class variability in the scores of a further six English classes where children were 'set' by ability in mathematics (apart from the top ability classes, where the variability was equivalent to that in the three Swiss classes).

The author suggests that a certain degree of homogeneity in ability may be a pre-condition

for the effective use of whole-class teaching methods. He recommends that the school starting age in England should be made more flexible, by around four months at each end of the twelve-month period. The advantages of such a policy would include: helping more slowly-developing children to avoid being identified as low attaining or having special educational needs; reducing the disadvantage of being summer-born; allowing gifted children to attain at a higher level; and enabling the class to progress at a faster and more uniform rate.

CROSSER, S.L. (1991). 'Summer birth date children: kindergarten entrance age and academic achievement', *Journal of Educational Research*, **84**, 3, 140-6.

The research aimed to find out whether 'summer-born' children whose parents delay their entry to school do better than those who start school with their year group.

The researcher drew a sample of children from seven areas of Ohio. Summer-borns (June to September birthdates) who started school a year late were matched with children who started school with their year-group. Pairs were matched in relation to sex and intelligence test scores (but not according to social class). Analyses were carried out on 45 pairs of summer-borns. Outcome measures were children's scores in tests of academic achievement, administered in fifth or sixth grade. The results showed that children who entered kindergarten at age six did significantly better overall, and that the difference was most apparent in reading. There appeared to be a particular advantage in reading for summer-born boys with delayed entry to school.

ZILL, N., LOOMIS, L.S. and WEST, J. (1997). *National Household Education Survey. The Elementary School Performance and Adjustment of Children Who Enter Kindergarten Late or Repeat Kindergarten: Findings from National Surveys* (NCES Statistical Analysis Report 98-097). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

The US Department of Education has carried out several large-scale telephone surveys,

asking parents about the educational experiences of their children. The phone-calls are randomised and the results are weighted to represent the total population. In 1993 and 1995, the surveys included 7,300 parents of children in first and second grades. This report focuses on the experiences of children who started kindergarten later than their year-group ('held back'), or who had repeated the kindergarten year ('retained').

The report states that most US children start school kindergarten at the age of five. However, some parents choose not to send their children to kindergarten until a year late (usually because they believe that their child is not ready for school, and will gain an advantage from being among the oldest, rather than the youngest in their class). The main reason for kindergarten *retention* is a belief among teachers that certain children are not developmentally ready for first grade and will benefit from extra time in kindergarten. In some cases, retention decisions are based on 'school readiness' assessments carried out towards the end of the kindergarten year.

In both surveys, nine per cent of children were held back from starting school by their parents. A further five per cent of children had been retained in kindergarten. Children who were held back or retained were significantly more likely to be younger in relation to their year-group and to be boys. There were differences in these practices related to ethnicity: white children were twice as likely to have been held back from starting school, whereas black and Hispanic children were twice as likely as white children to have been retained in kindergarten.

Parents were asked a series of questions about their child's progress at school, including their attainment relative to their classmates, any contacts initiated by the school concerning their child's behavioural or academic problems and whether their child had repeated a grade since starting school.

A comparison of delayed entrants with all those who entered kindergarten 'on time' showed that there were no differences in some areas, but there were advantages in others (for example, held back children were less likely to have repeated first or second grade and were more likely to be described as attaining up to their capabilities) Children who had been required to spend an extra year in kindergarten performed significantly less well than their first and second grade classmates on a whole range of measures. However, when the results were adjusted to take account of socio-economic factors (such as parental education, household poverty and speaking English as a second language), most of the significant differences disappeared. There were still significant differences in one area: held back children were less likely than their classmates to receive negative feedback from their teachers, whereas retained children were more likely to do so.

The authors point out that their study was not able to compare retained children with a control group who were recommended for retention but moved to first grade at the same time as their classmates. The report concludes that on the basis of this study, delayed entry and kindergarten retention do not appear to benefit (or harm) children's later school performance. However, there is a need for more research to provide a better understanding of these issues.

2. Starting school in England and Wales

This section focuses on the experiences of young children in this country and includes research on the following issues.

- Why do children start school so young?
- Does age affect progress in the reception year?
- Does season of birth and length of schooling matter?
- What are pupils' capabilities on starting school (as measured by baseline assessment)?
- What did OFSTED say about standards in reception classes and pre-school settings?

2.1 Trends in admission ages in England and Wales

WOODHEAD, M. (1989). "School starts at five...or four years old?": the rationale for changing admission policies in England and Wales', *Journal of Education Policy*, **4**, 1, 1-21.

In this paper, Martin Woodhead discusses the issues raised by the trend towards lower school admission ages in England and Wales. He begins by considering the historical background to our relatively young school starting age. Five was first established as the school starting age in the 1870 Education Act, after some parliamentary debate favouring six as the starting age. The main arguments put forward in favour of the early starting age emphasised the need to protect young children from exploitation at home and unhealthy conditions in the streets, while appeasing employers by establishing an early school *leaving* age so that children could enter the workforce. Subsequent legislation confirmed that parents must ensure their children attend full-time education from the start of the term following their fifth birthday.

In the next section of the paper, the recent trend towards admission to school before statutory school age is documented. Increasingly, schools have been admitting children at the beginning of the year in which they became five. This has been made possible by the falling birthrate and has been influenced by research showing evidence of a 'summer-born' effect (i.e. the trend for the youngest children in the year group do less well at school). The desire to give summer-borns the same amount of time in school as their older classmates has been an influential argument in favour of annual admission policies.

Finally, the paper moves on to discuss the issues raised by the admission of four-year-olds to schools. In most other European countries, children do not start school until the age of six or seven. Evidence from an early international study of mathematics is presented: the findings showed that countries in which children started formal schooling at six performed better than countries with either earlier or later school starting ages. The author suggests that this would seem to call into question the efficacy of an early start

as a means to ensure educational standards (although he points out that the result could have been influenced by other factors, such as the style of teaching and curriculum objectives in the countries concerned). Reference is also made to the evidence from the USA, which has showed that well-resourced and carefully planned pre-school programmes can have a strong positive effect on the lives of children.

The author concludes by calling for a debate on the reasons for adopting specific admission policies and on the purposes of the curriculum offered to young children: 'The precise educational rationale for the school environment being offered to four year-old children has been given inadequate attention, or overlooked altogether' (Woodhead, 1989, p.19).

WEST, A. and VARLAAM, A. (1990). 'Does it matter when children start school?' *Educational Research*, **32**, 3, 210-17.

In the light of an increasing trend to admit children to school at the beginning of the year in which they become five, this article reviews some of the research into the effects of age on entry to infant school. The authors point out that the majority of such studies show differences in performance between the oldest and youngest children, but it is not clear whether these are the result of children's age or the amount of schooling received.

The authors point to the importance of pre-school experience. The article concludes with a call for longitudinal research into the influences on differences in performance of the oldest and youngest in the year-group. The authors suggest that provision in reception classes needs to be 'on a par' with that provided in nursery schools and classes (e.g. in terms of staffing ratios, staff qualifications and curriculum).

2.2 Reception classes: progress and attainment

BROWNE, A. (1998). 'Provision for reading for four year old children', *Reading*, **32**, 1, 9-13.

This qualitative research study considered the impact of the introduction of 'desirable learning outcomes' (SCAA, 1997) on the development of literacy in a sample of pre-school settings. Visits were made to 13 pre-school settings (seven LEA nursery classes, two private nurseries, two daycare centres and two playgroups), and data were collected through observation, collection of documents and discussions with staff. The settings were located in rural and urban areas (the article does not give any further details about the location of the settings or the populations they served).

The researcher categorised the literacy approaches adopted in the settings as either appropriate or inappropriate for four-year-olds, based on the work of previous authors (Bredenkamp, 1987; Whitehead, 1996). For example, story sessions, literate role play and well-resourced reading and writing areas were considered to be appropriate. Practices stressing isolated skill-development (such as worksheets), teacher-directed learning, right and wrong answers and extrinsic rewards were considered to be inappropriate.

In five of the 13 pre-school settings, the approach to literacy was considered to be largely inappropriate for four-year-olds, due to the use of commercially-produced phonic programmes and worksheets. The pre-schools in question had recently introduced these schemes in response to the desirable learning outcomes document and to the perceived expectations of reception class teachers.

The researcher found an association between the training of staff and their approach to literacy: 'In general the qualifications of the staff using schemes and worksheets were not related to the education of nursery age children' (Browne, 1998, p.12). The approach to literacy in two further settings was described as informal but 'poorly organised'. Two settings were found to have systematic provision of high quality resources and planned, purposeful activities for reading and writing. Staff in these settings were recently qualified to teach young children and regularly attended professional development courses. The author points out that while the DFEE and SCAA document lays down outcomes for early learning, it does not specify the means by which those outcomes should be achieved. The author concludes by identifying a need for greater awareness of developmentally

appropriate practice among all concerned with learning in the early years.

TYMMS, P., MERRELL, C. and HENDERSON, B. (1997). 'The first year at school: a quantitative investigation of the attainment and progress of pupils', *Educational Research and Evaluation*, 3, 2, 101-18.

The Performance Indicators in Primary Schools (PIPS) project offers a service to schools wishing to assess the performance and progress of their pupils. This paper represents a collation of PIPS results from 1351 pupils attending 38 primary schools. Multilevel modelling was used to examine the progress made by pupils on PIPS mathematics and reading assessments carried out at the beginning and end of the Reception year. The multilevel models indicated that pupils' progress was strongly related to their pre-test scores, although there were also large differences between individual schools.

The researchers investigated the relationship between progress in the reception year and other factors, including age, gender, affluence (related to the areas in which children lived) and pre-school experience.

All children included in the analysis had experienced a full year in the reception class. As might be expected, children who were older in the year group did significantly better than their younger classmates in the maths and reading tests administered at the end of the reception year. There was also a significant relationship between age and *progress* in mathematics, with younger children making less progress between pre- and post-tests than their older classmates. There were no significant age-related differences in reading progress.

There were no gender differences in mathematics attainment or progress. Reading scores, however, showed a gender-related trend. Girls scored significantly higher than boys in reading at the end of the reception year, and they made significantly better progress in reading than boys.

Children from more affluent backgrounds had higher scores for maths and reading at the end

of reception, and they made significantly better progress in reading, but not in maths.

Compared with the minority of children who had not attended pre-school, children who had attended a nursery had significantly better attainment in maths and reading scores at the end of the reception year. There was no significant difference in the maths and reading progress of nursery attendees. The attainment of children who had attended a playgroup did not differ significantly from that of children who had not attended pre-school, but playgroup attendees showed significantly better progress in reading.

SHARP, C. and HUTCHISON, D. (1997). *How Do Season of Birth and Length of Schooling Affect Children's Attainment at Key Stage 1? A Question Revisited*. Slough: NFER.

This study used the 1995 evaluation of Key Stage 1 results to investigate associations between season of birth, length of schooling and attainment. The evaluation drew a national random sample of 3288 children in 114 schools in 50 English and Welsh LEAs. Background data on the children, supplied by their children's teachers, included their birthdate, sex, and eligibility for free school meals.

Analyses of variance showed that those who were oldest in the age-group (autumn-borns) performed best and the youngest (summer-borns) performed least well in their Key Stage 1 assessments. This relationship was highly statistically significant and persisted even when other factors (sex, eligibility for free school meals and length of schooling) were taken into account.

There was considerable variation in children's length of schooling, related to patterns of entry when they started school. An analysis of the assessment results by season of birth and length of schooling revealed a complex pattern. The mean attainment for autumn-borns with the full nine terms at school was higher than that of autumn-borns who had experienced eight terms at school. Summer-born children with only six terms at school did least well, but spring- and summer-borns with nine terms did less well, on average, than those of the same age who had experienced eight terms at school.

The authors conclude that these results are broadly consistent with those obtained in their previous study of the 1991 national curriculum assessment results. It is argued that season of birth exerts a strong influence on KS1 assessment results, irrespective of other factors affecting children's performance. This finding was not unexpected because summer-borns are younger when assessed, and the tests were not age-standardised.

The relationship between attainment and length of schooling was less clear-cut: older children appeared to benefit from spending the full nine terms in the infants, whereas

eight terms appeared optimal for children who were younger in the age group. The authors suggest that equalising children's length of schooling by adopting a policy of annual entry to school will not necessarily boost the performance of summer-borns. They speculate that the match between the developmental needs of younger four-year-olds and the quality of provision in reception classes may be an important factor influencing the attainment of summer-born children.

SAINSBURY, M. (1998). 'Baseline assessment: preparing for the national framework', *TOPIC*, Issue 19, Item 3.

In the autumn of 1997, the NFER conducted a research and development study of baseline assessment. The study involved 420 reception class teachers in 307 schools. It asked teachers about the baseline assessment currently in use and gathered opinions about the potential uses of baseline assessment information. Teachers were also asked to trial one of three prototype assessment schemes with six of the children in their class.

The survey found that although a range of different types of assessment schemes was in use, most (85 per cent) featured some kind of checklist. However, it was uncommon for teachers to derive a score from the checklist (which is a requirement under the national scheme). Just under a quarter of the teachers used a standardised test.

The three prototype schemes were all based on the criteria set out in the document on desirable learning outcomes on entering compulsory education (SCAA, 1997), which identifies six areas of learning. Due to different admission policies and practices, the age at which baseline assessment was administered varied from just four to five years. It was found that older children performed significantly better than younger ones and girls did better than boys. Children who had not experienced pre-school education did less well in the assessments, as did those with English as an additional language. There were variations in the level of difficulty of the items included in the assessment. For example, over 75 per cent of children were assessed as able to hold books, match items and order objects by size. However, reading simple texts, writing

sentences, hearing sounds in words, attempting to spell and mathematical problem-solving proved particularly difficult (less than 15 per cent of children were able to demonstrate these skills).

2.3 Inspection findings

OFFICE FOR STANDARDS IN EDUCATION (1993). *First Class: the Standards and Quality of Education in Reception Classes*. London: HMSO.

In the autumn term of 1992, HMI visited 88 English primary schools in 41 LEAs to inspect the work in 141 reception classes. About half of the schools served areas of social and economic disadvantage. This report summarises inspection findings and offers recommendations for good practice.

The standard of work was judged to be satisfactory or better in nearly 80 per cent of reception classes. This represented an improvement compared with previous inspections of reception classes. Levels of staffing varied markedly from 6:1 to 35:1. Standards were usually better in classes with a well qualified teacher and a suitably qualified assistant.

Among a series of recommendations, the report suggests that reception classes should give priority to teaching the skills of literacy and numeracy as part of a rich, varied and manageable programme of work. There should be opportunities for children to listen to good models of language, speak clearly and confidently, increase their vocabulary and 'make a sound start on the road to reading and writing'. The report also recommends an entry policy which ensures that all children spend three terms in reception (i.e. annual entry to school). This is considered to be particularly important for summer-born children, who would otherwise spend less time at school than their older classmates.

OFFICE FOR STANDARDS IN EDUCATION (1998). *The Quality of Education in Institutions Inspected Under the Nursery Education Funding Arrangements*. London: OFSTED.

This report draws on evidence from inspections under phase 2 of the Nursery Education Voucher Scheme. The inspections were carried out between June 1997 and March 1998. They considered how well each institution was promoting the progress of four-year-olds towards 'desirable outcomes' in six areas of learning (SCAA, 1997).

The report draws on an analysis of 9796 inspection notebooks relating to education for four-year-olds in the private, voluntary and independent sectors. This is supplemented by information from: 40 inspection reports; a survey of 21 institutions for children with special educational needs; over 200 Section 10 inspection reports on maintained nursery and primary schools; and an analysis of over 17000 lessons observations from classes containing nursery and reception age children.

Most institutions were judged to be successfully promoting the desirable outcomes. Nearly 60 per cent had overall strengths, and about 40 per cent had minor weaknesses (provision judged to be poor in only one per cent of institutions). In relation to the six areas of learning, the promotion of personal and social development was considered to be 'secure' in 86 per cent of settings, physical development was secure in 77 per cent and creative development was secure in 75 per cent. Knowledge and understanding of the world was the weakest area, with 60 per cent of settings meeting the criteria. Mathematics was secure in 69 per cent, and language and literacy in 65 per cent.

Whereas planning was judged to be appropriate in most cases, assessment of children's attainment and progress was generally weaker. Resources and accommodation were generally adequate, with the exception of technology (especially information technology) and outdoor provision.

An analysis by type of institution found that there were considerable differences in inspection outcomes. Provision was judged to promote the desirable outcomes in 86 per cent of independent schools and 74 per cent of private nursery schools. Over two-thirds of local authority day nurseries, private day nurseries and 'other' providers fell into this category. But only 49 per cent of playgroups were judged to be promoting the desirable outcomes (49 per cent were considered to

have minor weaknesses). The report comments that many playgroups were constrained by factors such as staff experience, training and turnover, together with resource limitations affecting language and literacy, mathematics and knowledge and understanding of the world in particular.

Provision for four-year-olds was judged to be satisfactory or better in 90 per cent of

reception classes inspected (the report comments that this evidence refutes the 'widespread belief' that the curriculum in reception classes is not suited to four-year-olds). There was some cause for concern in reception classes where planning was weak, accommodation was over-crowded and quality of teaching was not geared to the youngest four-year-olds.

3. Early experiences - later effects

The studies included here have looked at the effects of young children's early experiences in pre-school. More specifically, there is evidence on the effects of different pre-school curricula, and on teaching reading and other more 'formal' skills to young children.

- What are the effects of different pre-school curricula?
- Do early readers do better later?
- How do pre-school experiences affect children at school?

3.1 Effects of different pre-school curricula

SCHWEINHART, L.J. and WEIKART, D.P. (1998). 'Why curriculum matters in early childhood education', *Educational Leadership*, **55**, 6, 57-60.

This study followed 68 three- and four-year-olds from disadvantaged backgrounds who attended one of three pre-school programmes in the USA (*The High/Scope Pre School Curriculum Comparison Study*). An important feature of the research design was that the children were randomly assigned to the pre-schools. The pre-schools each had a different curriculum model, based on different psychological traditions (behaviourist, constructivist/developmental, and psychoanalytic).

Direct Instruction was a teacher-led approach with academic lessons. Teachers had clearly-defined academic goals in terms of reading, arithmetic and language. The High/Scope Curriculum used a 'plan-do-review' sequence in which teachers worked with children to initiate, carry out and evaluate activities.

Children had access to a range of experiences intended to promote intellectual, social and physical development. The third pre-school programme used a *Nursery School* approach, in which teachers created classroom themes and presented children with a range of activities. Children were encouraged to choose their own activities and to engage in free play.

The researchers followed up the children at various points in their lives. On the most recent occasion they had reached the age of 23. The group who had attended the *Direct Instruction* programme appeared to be at a distinct disadvantage to one or both of the other two groups on a range of personal and social measures. For example, they were significantly more likely to have received treatment for emotional problems and had a much higher incidence of arrest and suspension from work. They had a lower incidence of college graduation and marriage. The authors suggest that an emphasis on child-initiated activities developed children's social responsibility and interpersonal skills and that this had a long-lasting influence on their personal and social outcomes.

KARWEIT, N. (1989). 'Effective preschool programs for students at risk.' In: SLAVIN, R.E., KARWEIT, N.L. and MADDEN, N.A. *Effective Programs for Students at Risk*. Needham Heights, MA: Allyn and Bacon.

This chapter reviews the evidence on the effects of different pre-school programmes in the USA. Three studies were identified that examined the effects of participation in particular pre-school curricula using an experimental research design with random assignment to pre-school 'condition'. The

chapter also includes details of pre-school programmes that have been certified as effective by the US Department of Education's Joint Dissemination Review Panel.

The first study looked at the effects of three approaches on a population of disadvantaged black children with low initial IQ (Schweinhart *et al.*, 1986). Children attended one of three pre-school programmes (High/Scope, nursery and Direct Instruction), on a half-day basis for two years. The results showed a large jump in IQ for all three groups after entry to pre-school, followed by a steady decline to age ten. At age 15, High/Scope and nursery attendees reported engaging in half as many delinquent acts as the Direct Instruction group. The researchers ascribed these differences in delinquency to a lack of opportunities for autonomy and self-direction in the Direct Instruction programme.

The second study (Karnes *et al.*, 1983) contrasted five different pre-school curricula for low-income families (nursery school, Direct Instruction, Montessori, community/integrated and GOAL). The children attended on a half-day basis for one year. The evaluators followed the children for 15 years and concluded that no one programme demonstrated superiority over the others. The third study in Louisville (Miller and Bizzell, 1983) contrasted four approaches (nursery school, Direct Instruction, Montessori and Gray) with a control (regular Head Start programme). Children attended for six hours a day for a year and were followed up over an eleven-year period. (No details are given of the children's economic or ethnic background.) The evaluators found minimal programme effects until the results were analysed separately by sex.

Boys who had attended the Montessori programme achieved higher IQ scores and better grades at school than boys attending the other programmes.

The author concludes that these research studies do not present a consistent picture of the greater effectiveness of a particular pre-school model for disadvantaged children. She suggests that many programmes may be 'worthwhile and not injurious' to children: there is a need for more research to identify the characteristics of more effective programmes. In the final chapter of the book,

the authors conclude: 'Effective pre-school programs tend to emphasize exploration, language development, and play, not academics. Effective kindergarten programs build language and prereading skills using structured, well-organized, comprehensive approaches (Slavin *et al.*, 1989, p. 356).'

3.2 Age of starting reading

BLATCHFORD, P. and PLEWIS, I. (1990). 'Pre-school reading-related skills and later reading achievement: further evidence', *British Educational Research Journal*, **16**, 4, 425-8.

This article reports the results from two studies of associations between children's early reading skills and their reading attainment at age 11. In the first study, 343 children from 33 inner London multi-ethnic schools were tested at the end of their nursery year and 166 of these children were retested at the end of the junior school. The second study took a sample of children from 20 inner London schools (18 of which had participated in the first study). These 920 children were tested at the end of reception and 776 of them were tested again a year later.

The nursery and infant-age children were assessed on letter recognition (children were asked to give the name and sound of a series of letters). The *Suffolk Reading Test* was used to assess the reading ability of the 11-year-olds. Results showed a significant correlation between young children's ability to name and sound letters and their reading, vocabulary and handwriting skills at age seven and eleven. Correlations were stronger at age seven, but were still statistically significant at 11. Letter sounding and letter naming were equally predictive of later reading attainment.

Although these results demonstrate that children with specific reading-related knowledge at school entry tended to be better readers at age seven and 11, the authors are careful to point out that this does not necessarily imply a causal relationship (i.e. the ability to identify and write letters by age five does not necessarily bring about better reading later). The authors assert that teaching young children to write and recognise letters cannot do any harm and may well benefit children later. They suggest that, in order to reduce educational inequality, reception class teachers should assess children at the beginning of the school year and direct their time towards children who do not demonstrate letter naming and sounding skills.

McQUILLAN, J. (1998). *The Literacy Crisis: False Claims, Real Solutions*. Portsmouth, NH: Heinemann.

In Chapter 4 of this book, the author reviews the research evidence on early reading and reading instruction. He states that there are many documented cases of 'natural' or 'precocious' readers (i.e. children who learned to read early and without any formal reading instruction). The author's own evidence indicates that as many as one in ten US children begins to read before he or she starts school. Studies of these children reveal certain common features, for example: they were usually read to by their parents, had easy access to books and came from homes where they saw adults engaged in reading. These children often showed a strong early interest in reading, but were not pressurised to read by their parents. Although parents may have offered some help (such as teaching children the names of letters), they did not use the systematic formal approaches to teaching reading that are commonly used in schools.

The author reviews four US studies which compared the progress of children who were already reading by the age of school entry with that of non-readers. The results showed that the early readers maintained their advantage in the later primary grades. However, it is likely that factors other than age of beginning reading (e.g. number of books in the home, parental education level) contributed to the maintenance in advantage by the early readers.

The author goes on to review four further studies of early reading instruction. These studies used experimental (or quasi-experimental) designs, in which one group of pupils received early reading instruction and another, equivalent group, did not. The author argues that these studies showed evidence of a 'tortoise and hare effect'. Children who were taught to read 'early' (around the age of five) did better in reading at first, but the advantage was short-term and had little or no lasting effect on later reading progress (the children who were taught to read later had caught up by about the age of eight).

The chapter concludes by suggesting that 'early' interventions to teach reading are unlikely to be successful in combating later reading difficulties. Research evidence suggests that early access to reading materials

in a supportive environment may be key factors in promoting sustained reading development.

3.3 Pre-school effects on children's school behaviour

JOWETT, S. and SYLVA, K. (1986). 'Does kind of pre-school matter?' *Educational Research*, **28**, 1, 21-31.

This study focused on a sample of 90 children during their first year at ten primary schools. Half of the sample had experienced local authority nursery education and half had attended poorly resourced playgroups. Children were matched on sex, age and social background. All the schools served children from working-class areas of industrial towns in the same English county.

Children were observed by the researchers during their first term in reception and again six months later. An observation schedule was devised to record the extent of cognitive complexity in children's free play activities; social participation/interaction; spoken language; and reaction to difficulty. Teachers were asked to complete an assessment of the children's adjustment to school. The children's conceptual understanding of space, quantity and time were assessed on the *Boehm Test of Basic Concepts*.

A statistical analysis of observational data gathered in reception classes showed that the children who had attended a nursery were significantly more likely to engage in play of high cognitive challenge than were playgroup attendees. These differences were apparent for free play activities undertaken alone or when engaged in parallel play alongside other children. Nursery children spent more time completing workcards and in self-initiated writing. When encountering an obstacle to their activity, nursery children were more likely to persist, whereas playgroup attendees were more likely to ask for assistance. There were no significant differences in the extent of the children's social participation, or in the frequency of their conversation. However, nursery children engaged in more conversation with their peers and more frequently initiated learning-oriented conversations with their teacher. Playgroup

children spent twice as much time near to, but not interacting with, the teacher.

Teachers' assessment of children's adjustment to school showed one significant difference: playgroup children were rated as less verbally fluent. No significant differences were found on the test of basic concepts.

The authors conclude that the children who attended nursery classes were more 'ready' for school than a matched group of playgroup attendees. They point out that the observed differences in children's behaviour are consistent with differences noted in a previous study of playgroups and nurseries. Compared to children in nurseries, children in playgroups spent twice as much time in large, adult-led groups where they had limited opportunities for self-initiated activity. They had fewer conversations with one another and were more frequently found to be near, but not interacting with, an adult. It is argued that playgroups, because of their lack of facilities, space and resources, may offer limited opportunities for children to solve their own problems. Conversely, well-resourced nurseries can have a measurable impact on working-class children when they start school.

BALL, C. (1994). *Start Right: the Importance of Early Learning*. London: Royal Society for the Encouragement of Arts, Manufactures & Commerce.

This report represents a review of research and practice in early education in this country and elsewhere. It concludes that high-quality pre-school education leads to immediate and lasting social and educational benefits for all children, particularly the most disadvantaged.

In an appendix to the report written by Professor Kathy Sylva, research findings are presented that point to the important consequences of young children's attitudes to learning. Children who are persistent in attempting difficult tasks are 'mastery' oriented: they maintain a positive attitude and continue to apply problem-solving strategies. It is argued that the most important learning in pre-school concerns aspirations, task commitment, social skills and feelings of self-efficacy.

The report points out that, compared with other European countries, the UK is unique in depending so heavily on playgroups, a 'shift system' for nursery education and early admission to primary school. A number of recommendations are offered, including: a review of the training requirements for early years teachers; the development of high-quality pre-school education for children from the age of three; and raising the age of compulsory full-time schooling from five to six.

OLIVER, C., SMITH, M. and BARKER, S. (1998). 'Effectiveness of early interventions.' Paper presented at the 'Cross Departmental Review on Provision for Young Children' Ministerial Seminar hosted by Joseph Rowntree Foundation, Institution of Civil Engineers, 11 March.

As part of a cross-departmental government review of provision for young children, this paper presented an overview of research in the UK and other countries on the effectiveness of a variety of early interventions.

The paper is wide-ranging, covering a variety of early interventions targeted at different levels (the child, maternal health, parents, local environment and the national context). Part of the paper is devoted to the evidence on interventions targeted on the child, including pre-school education. From their review of the research evidence, the authors identify key characteristics of effective pre-school programmes. They suggest that high-quality pre-school education is effective because it increases a child's receptivity for learning. They point out that some of the most effective early interventions involve parents in their child's cognitive development, either at home or within a pre-school centre. The authors conclude that the most effective projects utilise children's instinct for play and allow children to be physically active. They also suggest that building self-esteem is a key element in securing positive long-term outcomes for children and their parents.

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