



REVIEW

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What is the impact of out-of-home integrated care and education settings on children aged 0-6 and their parents?

Review conducted by the Early Years Review Group

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LIST OF ABBREVIATIONS

BERA	British Educational Research Association
DfES	Department for Education and Skills (previously DfEE, Department for Education and Employment)
ECERS	Early Childhood Environmental Rating Scale
EYDCP	Early Years Development and Childcare Partnership
FDC	Family day care
OECD	Organization for Economic Co-operation and Development
QCA	Qualifications and Curriculum Authority
REEL	Research Evidence in Education Library
SES	Socio-economic status

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SUMMARY

Background

This report looks at research that assesses the impact of out-of-home integrated care and education settings on children aged from birth to six.

Integration is currently a topical issue in the field of early childhood provision, but there is considerable confusion about how and why integration should be pursued, and what works in what contexts. Arguments for integration include:

- the benefits to children of receiving consistent care and education in the same place and at the same time, rather than the disruption of moving between different provisions;
- the benefits to parents of the comparative simplicity of these arrangements;
- the cost-effectiveness of single provision.

In many European countries, it is conceptually problematic to present the care and education of young children as separate because they are simply not distinguished from each other. It might be more appropriate to represent integration of care and education as a continuum, with the UK, where childcare and education have been treated as distinct in policy and in practice, representing one extreme. Childcare in the UK, where it exists, has been 'wrapped around' a standard two-and-a-half hour education offer for 3-4 year-olds. Attempts are now being made to change this situation, and to offer 'integrated' provision in 'children's centres'. However, 'integration' is an umbrella term that encompasses many different meanings. It may refer only to different types of services working alongside one another, in adjacent spaces, loosely co-ordinated, but without any fundamental change of approach; or it may mean a coherent service equally accessible to all potential users, with a common costing, staffing, health, pedagogic and curricular framework for all provision. It may also mean combining care and health provision, rather than care and education provision. These are the issues that this review set out to clarify.

We therefore adopted a minimalistic, pragmatic approach for the review. We defined 'care' as offering six hours a day or more of care for children – in other words, longer than a full school day and long enough to offer employed mothers an opportunity to have their childcare needs met or partly met. We defined 'education' as a system that followed an agreed publicly-stated curriculum. Unless it was clear from the context (i.e. the country in which the research took place), we required that the care and education contents were stated according to these definitions, in all research studies to be included in our review.

Methods

The core group of researchers included academics and practitioners in care and education. This was supplemented by another group which included a wider range of academics and practitioners, who were consulted at various stages in the procedure: formulating the research question; writing the protocol; and writing the draft report.

Initial work concentrated on development of definitional statements, inclusion/exclusion criteria and extensions to the EPPI keywords (Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), 2002) Integrated education was defined as institutional; open for at least six hours a day, five days a week; and with a formally agreed curricular framework and delivery of activities. A table was developed of types of provision in different countries to assist in determining whether provision was integrated, where this was not explicitly stated.

Other inclusion criteria were as follows: the study must be aimed at children aged six or under; the study must be evaluative; the study must be published after 1974; the study must be written in Bengali, Dutch, English, French, German or Spanish; and the study must not be a thesis. A search strategy was developed, based around the combination of a range of words related to education, with a range related to care. Major databases, websites and library catalogues were searched using this strategy.

The abstracts were scanned to make an initial decision about whether they met the inclusion criteria. Those where determination was positive or unclear were obtained, and where they still met the criteria on examination of the documents, they were keyworded using the EPPI and review-specific keywords.

Following this exercise, a map of relevant literature was produced. Literature at this point had not been restricted by study type and the map included reviews and primary studies. These studies measured effects on outcomes and/or processes for a range of stakeholders. It was decided that the in-depth review question should be, 'What is the impact of out-of-home integrated care and education settings on children aged 0-6 and their parents?'. Further criteria were developed for the in-depth review in addition to the ones mentioned above. These were that the study should evaluate effects on outcomes for children or parents; be a primary study and not a review, and report on provision starting before age five. Most importantly, the criteria referred to quality of reporting. Studies were required to state the aims of the research unambiguously, give details about data-collection, sampling and recruitment methods and describe the study's sample. Data-extraction was undertaken using EPPI Reviewer and EPPI-Centre Guidelines for assessing the weight of evidence attached to each study were followed.

The decision to make the review international and wide-ranging caused significant problems. Firstly, keywording criteria were difficult to apply consistently because of the considerable difference in provision across the countries. It was often difficult to predict from the name of the setting what sort of service was being provided. More detailed work in this area resulted in some articles being excluded from the map. Secondly, comparisons across countries caused problems at the data-extraction stage. Sampling frames, measures and tests were very different. This also highlighted the insularity of much of the research. Researchers often assumed that the circumstances of the setting in their country would automatically be known and did not need to be specified.

Results

The map described 133 reports: 33 were reviews; the rest were evaluative reports describing 63 studies. Much of the research literature in this area reports only on the processes of implementation. Fewer studies report on outcomes for

children or parents. Nine studies were selected for the in-depth review. The contexts of these nine studies varied widely: they covered six countries – France, Israel, Korea, Norway, Sweden and the United States – and a range of social groups. Two studies targeted low income multi-problem families, two focused mainly on middle-class families, and others drew on mixed social groups. Research methods also varied: the reports included retrospective, prospective and longitudinal studies. Three studies used comparison groups and two used random allocation to these groups.

Despite the use of quality criteria when screening studies for inclusion in the in-depth review, the nine studies varied significantly in the quality of research and reporting. Using the EPPI weight of evidence system, five were rated medium or medium-high, and none were rated high. Two of the studies were assessed as contributing low weight of evidence because of inadequate reporting of methods.

Conclusions

The review was originally intended to address a topical policy issue in the UK, that is the research evidence on the impact on children and their parents of the integration of care and education in the early years. The Government's focus on integration is relatively new and there are no UK studies that directly consider the issue of the integration of education with childcare for the children of working parents. Although we consider that our findings are relevant to the current UK policy debate, none of the studies we have included for in-depth review were carried out in the UK.

Most of the research literature is framed within one of three particular approaches: the effects of day care on children and their mothers; the effects of various kinds of educational curricula; and the effects of intervention on multi-risk families. We only selected for in-depth review those studies that clearly indicated that children received both care (i.e. for more than six hours a day) and education, whatever the particular research framework.

Although all seven studies rated as reliable found that, broadly speaking, the impact of integrated care and education was beneficial for children, especially children from multi-risk families, and that early age of entry to such provision was advantageous, there are considerable difficulties in generalising across settings. These can be described as follows:

- *The effect of the research framework.* The emphasis of the study – on day care, type of curriculum or intervention in multi-risk families – led to a focus on different kinds of results.
- *The effect of type of setting.* The Scandinavian and French studies were reporting on well-established systems of early education and care operating under standard conditions, such as training of teachers and childcare workers; in the American and Korean studies, the provision was established for the purposes of the study and might not be easily replicable; the Israeli study investigated a kibbutz, which has unique characteristics. The types of setting were so different that any comparisons across countries can only be very general indeed.
- *The range of study designs, observations and tests.* Teacher and parent assessments of children's social competence are likely to rely on local norms and expectations, such as expectations of competency and skills, and

variations in school starting age. The studies also used different kinds of measures of impact, some of which, such as IQ, were standard, but others were country-specific. There must, therefore, be concerns about comparability of outcome measures across countries.

Policy recommendations

It is difficult to make unequivocal policy recommendations about the integration of care and education for young children, given the wide variety of settings across countries and the different frameworks within which research in this area has been carried out. There are prior judgements to be made about the types of services offered to young children, about entitlement, cost and quality. It is most likely that integrated childcare and education benefits children and their parents, in particular their mothers; but the evidence does not address the wider issues of setting up such provision – access, staffing, costs and other issues involved in the development of new services.

Research recommendations

This review has highlighted the need for UK research that directly addresses integration issues, given that it is a policy priority. Although our in-depth studies indicated that integrated settings benefited children, this finding is qualified by reference to the country in which the research took place, and in particular by questions of access. Results for countries with universal provision (for example, Nordic countries) cannot be directly compared with results from highly targeted provision for children from multi-problem families (as in the US).

The review highlights the extent to which the issue of integration of childcare and education is under-researched, and the need for policy to be more securely grounded in the research evidence. The review methodology also raises the question of standards of research and research publications in the field. If evidence is to be closely scrutinised, it must be well reported. Details of sampling, test measures, data-collection and analysis need to be clearly set out, for inadequacy in any of these areas might affect outcomes. Much of the research we reviewed, however promising in scope, was very weak in this respect.

Even if the results were not as conclusive as we had hoped, clarifying the issues and highlighting the gaps has been an essential step.

1. BACKGROUND

The broad focus of the Early Years Review Group is research on the impact of various policies that promote early education and care. In this report, we look at research that assesses the impact of out-of-home integrated care and education settings on children aged from birth to 6. At the mapping stage, before refining our research question further, we included studies that explored processes as well as outcomes. We also included reviews of the evidence. We then tightened our criteria in several ways and finally reviewed in depth nine studies, which form the main body of this report.

In this chapter, we explain the background to our choice of topic for this review. We provide working definitions of our terms and show how definitional and conceptual issues led us to narrow our focus as the review progressed. We indicate which policy and practice issues have informed our review, and which wider research we have drawn upon. We outline our own composition and perspective as a review group, and comment on other user perspectives, besides those of our members, that have contributed to the review.

1.1 Aims and rationale for the current review

This review is the first of a series which aim to identify the impact of various policies that promote early education and care.

The aim of the first stage of the review was to identify and describe studies that examine the impact of integrated care and education and the processes involved. We first took a very broad definition of integration, and mapped what was included under such a broad categorisation; we then sought to be more specific about the processes and outcomes identified. We aimed to provide:

- a systematic review of existing research meeting explicit criteria for the scope, study design, reporting, language and timeframe;
- a database of data extracted from existing reports, using EPPI systems;
- an indication of gaps in the research which need to be filled.

This report is one of a range of reports and report summaries targeted at different audiences, such as practitioners and policy-makers.

Initially, the review aimed to seek information concerning any studies of provision that met the general criteria of offering education and a minimum of six hours of care to children aged from birth to 6. These studies needed to have either measured outcomes, or documented processes or both. The main point of this first stage was to code those studies that met this initial level of investigation, so as to map in detail their nomenclature, attributes and the range of activities in the provision they undertook, if these aspects were recorded in the study. The bibliographic details of all of these studies have been made searchable using these codes via the worldwide web as part of the EPPI-Centre's Research Evidence in Education Library (REEL).

The review then progressed to a second stage, the in-depth review. To reach this point we applied a second, more restrictive, set of inclusion criteria. These

selected a smaller group of studies to be described in greater detail, critically appraised and then synthesised. The review aimed to provide detailed descriptions and quality assessments of these studies, and enter them and make them accessible via REEL, with the intention of providing recommendations for policy and practice.

1.2 Definitional and conceptual issues

In this review, we have been concerned primarily with processes and outcomes of arrangements that enabled mothers (parents) to work outside the home, and children to be cared for and educated in a single setting for a substantial part, if not all of their pre-school life. The definitions we adopted are as follows:

- **Care:** institutional (i.e. not by childminders or relatives) and full-time (i.e. open *at least* six hours a day, five days a week)
- **Education:** a formally agreed framework for a curriculum and delivery of activities arising from the curriculum – for example Curriculum Guidance for the Foundation Stage (DfEE/QCA, 2000)
- **Integration:** In the first instance we used a very broad definition of integration, in order to accommodate as many research studies as possible. This combines the above definitions of care and education: that is, out-of-home care for six hours or more *and* a formally agreed curricular framework and delivery of activities for children aged between birth and 6.
- **Impact:** We used impact in the sense of outcomes for children including pleasure; wellbeing; health; cognitive change or language development; behavioural change; test and exam performance; and long-term social integration and social and emotional adjustment outcomes, such as juvenile delinquency rates. We did not limit the definition of 'long-term'. We also used impact in the sense of outcomes for mothers and fathers, including maternal and paternal health and wellbeing; maternal and paternal employment rates; improved parenting skills; and changed relationships with the child.
- **Processes:** Analysis and discussion about how any changes appear to have been effected, such as through particular staffing arrangements; pedagogies; choice of curriculum; health-promoting activities; access; parental support; and funding.

1.3 Policy and practice background

Practitioners and policy-makers, particularly those involved in setting up new forms of integrated provision, are concerned with understanding the research lessons from studies on integration. However, since definitions of integration are very varied, any lessons from research will need to specify their contexts very carefully. Different strategies may work more or less well in different contexts, and we did not expect to produce a list of recommendations which might be considered a specification of 'good practice' in the area.

'Integration' is currently a topical issue in the field of early childhood provision, but there is considerable confusion about how and why integration should be pursued, and what works in what contexts. One argument for integration is that, if mothers work, outcomes for young children would be better if they were to receive consistent care and education in the same place and at the same time, rather than experience the disruption of moving between separate and

successive childcare and nursery education regimes. Mothers would also benefit in terms of employment opportunities from the increased ease of access and simplicity of an arrangement that offered care and education in one place, instead of having to make extra, and sometimes complicated, arrangements for their children to move between care and education settings.

In the UK, at the current time, all children are in primary school by the age of five. A core of part-time (two to three hours) free nursery education is provided for all four-year-olds, and for 80 percent of three-year-olds; but parents must usually find and pay for any arrangements outside that core entitlement. In the last few years there have been a number of important new initiatives – early years centres, neighbourhood nurseries and children’s centres that have tried to provide ‘integration’ – but these have had no satisfactory model to draw upon (McCalla *et al.*, 2001).

Another argument that has been put forward for integration is that it would be more cost-effective from a policy and implementation point of view to have a single system of early education and care and reduce overlap between different kinds of services. The recent Cabinet Office report *Delivering Childcare for Families and Children* (Cabinet Office, 2002) has emphasised these aspects of integration and, as a result, at an administrative level within the Department for Education and Skills (DfES), responsibility for delivery of all early years services has recently been integrated under the rubric of *Sure Start*, although the funding streams for care and education remain largely separate.

The search for a model of integration is complicated by considerations of social class. Much provision for young children in the UK has been aimed primarily at reducing the emotional stresses experienced by poor families with young children by providing support services for mothers (and considerably less frequently for fathers). Support services have included parenting classes, health visiting and home visiting and various kinds of therapeutic and educational support for mothers; and, in some cases, wider community support, such as hosting a variety of community activities or supporting particular groups (Penn and Gough, 2002). The *Sure Start* programme in the UK was originally based on such a model, but has extended its remit to include care and education provision for children alongside support activities for their parents. As noted above, the recent Cabinet Office report has emphasised the need for *Sure Start* programmes to become more ‘integrated’ with other early education and care initiatives.

In the US, many of the programmes and policies have focused on interventions with low-income, mainly African-Caribbean families. This is not the case in most European countries, where there are universal, locally provided, state-funded services. Social class may be taken into consideration in allocation of resources, but it has not critically determined how services have been provided (Organization for Economic Co-operation and Development (OECD), 2001). An indication of this is provided in Appendix 2.5, which was produced as part of this review.

In practice, ‘integration’ is an umbrella title that may encompass many different meanings. It may refer only to different types of services working alongside one another, in adjacent spaces, loosely co-ordinated, but without any fundamental change of approach. At the other extreme, it may mean a coherent service equally accessible to all potential users, with a common costing, staffing, health, pedagogic and curricular framework for all provision. It may also mean combining care and health provision, rather than care and education provision.

As noted above, the arguments for integration, at least in the sense of common costings, pedagogic and care arrangements, have long been accepted and enacted in Continental Europe, at least for children aged 3-6 (European Commission Network on Childcare, 1996; OECD, 2001). However, in the UK and other English speaking countries, provision has historically been more fragmented. There have been many different kinds of provision, much of it part-time, underwritten by a strong rhetoric of choice (Moss, 2001; Pugh, 2001). The historical diversity of early education and care provision in the UK, and the relatively recent nature of new initiatives, means that there is very little in the way of research about integration to draw upon. This diversity of provision across countries, and within countries such as the UK, has to be addressed both in policy and in research terms.

1.4 Research background

In reviewing the research, we concluded that most of the research reviews and articles we have read addressed one (or more) of these policy agendas:

- Does day care harm (or benefit) children and/or their mothers and fathers?
- Do some kinds of educational curricula lead to better cognitive outcomes?
- Do some kinds of interventions produce better outcomes than others for low-income families?

(a) *The day care agenda*

The day care debates arose mainly from concerns about the day care arrangements of working mothers. There were concerns that children who entered day care too early, or stayed for too long a period, were likely to suffer in some way (Belsky and Rovine, 1988). There are various kinds of day care models, for instance those that group children by age and those, as in Denmark, that argue against such age grouping (OECD, 2001). But the details of the day care models described in research reviews and studies are not always reported. There is, however, US literature that deals with staffing issues in day care, mainly pay and training (Whitebook *et al.*, 1989). The day care debate has tended to ignore education and curricular issues, and where the issue has arisen at all, has been addressed in terms of the more vague notion of 'quality'. Some studies have attempted to estimate the 'quality' of the provision, usually in relation to physical layout and equipment or in terms of staff-child ratios. Measures of 'quality', most notably the Early Childhood Environment Rating Scale (ECERS), tend to be unitary or global measures, and do not adequately distinguish curricula or educational programmes from other environmental aspects of the setting.

(b) *The educational curricular agenda*

The curriculum represents a considered *value judgement* on what is educationally worthwhile. Some systems, most notably in Spain (Penn, 1999), insist on the need for a specifically educational approach throughout the age period 0-6, including for very young children. There is also a move in the UK to introduce clearly formulated educational objectives for younger children (Abbott, 1997). Bennett (2000), in a review of European provision for the OECD, makes a distinction between two kinds of early years curricula, which he typifies as *integral, consultative curricula* and the *expert, competence-orientated curriculum*. However, just as day care studies often omit mention of educational curricula, educationally orientated investigations frequently make

no mention of day care, and it is not possible to tell from the study or review what hours children attend.

(c) *The poverty intervention agenda*

Thirdly, many of the studies and reviews of the impact of specific programmes on poor families (mainly African-Caribbean communities in the US) neither state the hours of care nor whether there is an education curriculum. Instead, they tend to focus on the impact of various maternal support/training initiatives. One might cynically describe this as the vaccination against poverty approach, since the interventions are intended to help mothers and their young children develop personal skills and characteristics which will inure them against poverty (Kagan, 1998).

Most studies have followed one or another of these policy agendas and do not deal with both education and care as we have defined it here. For this reason, some better known studies have been omitted from consideration in this review, including some UK studies.

There is one systematic review that overlaps to some extent with this review (Zoritch *et al.*, 2000). This review, which was conducted as part of the Cochrane Collaboration, aimed to quantify the effects of out-of-home day care for pre-school children on educational, health and welfare outcomes for children and their families. Studies were included in this review if they used a randomised controlled trial design and examined the provision of non-parental day care for children under five years of age. The authors do not focus in particular on the educational component of provision or on the hours provided, although some of the studies reviewed do specify these things. This review was included in this study's map.

In addition, these policy agendas and the research they have generated refer mainly to English speaking countries. There is a distinction to be made between such research, and enquiry in those European and ex-communist countries where the value judgement about the utility and benefits of integration of early education and care was made by governments a long time ago, and services have been designed accordingly. Where early education and care services have been integrated since their inception, research has tended to focus on processes rather than outcomes. The most well known example of an integrated system in the field of early years is that of Reggio Emilia in Italy, but there are no impact data available and those involved argue that it is inappropriate to provide them (Dahlberg *et al.*, 1998; Progetto ALICE, 2003).

Comparative educational research inevitably runs into problems about the aims, values and historical practices of the systems under consideration (Alexander, 2000). One such example is the age of statutory schooling. England has an exceptionally early school starting age and not only are all children in full-time school by the age of five, but most four-year-olds are also in school. In the US, children typically attend a (mainly) part-time kindergarten year at school aged 5-6 and start grade 1 in the calendar year they turn six. In most other countries, school does not start until six or seven years. Types of settings and the administrative responsibility for planning and resourcing them also vary across countries. For example, in France, Belgium and Italy there is one pre-school system for children aged birth to 2 years and another for children aged 3-6; on the other hand, in Nordic countries pre-school children of whatever age will typically attend one setting, their local day care nursery, before starting school. However the age range of birth to six years is widely regarded internationally as a

conceptually distinct stage for making education and care arrangements (OECD, 2001). We have therefore adopted the age range of birth to 6 as our focus for provision, but as the methodology makes clear, we made various refinements related to age groupings as the study progressed.

Given these various research and policy agendas, we have taken a pragmatic view. If there are impact or process measures, and if the setting is integrated according to our definitions of care and education (even if 'integration' is not necessarily being specifically investigated as the main focus of the research) and if the children receiving care and education are aged between birth and 6 years, we have included the study, at least at the mapping stage, because we have assumed that the findings may be relevant to our review question. In the final sections of the review, we return to this knotty problem of comparing like with like.

1.5 Authors, funders and other users of the review

The Review Group has, in the course of its operation, reorganised itself into a small core group, who have been involved in selecting and defining the review's scope and have undertaken most of the analysis; and a peripheral group, with whom we have kept in touch, and who have commented on the findings at various key stages and assisted us with dissemination. Initially we hoped to involve practitioners/users as regular members of the Review Group. The complexity of the research question, and the continuity that was necessary to maintain the discussion about the research question within the group, meant that the group, as originally envisaged, was too large and unwieldy. Practitioners were involved in helping set the original question, but the composition of the group changed. The small core group, including two policy representatives (LB and EL) met regularly, and the peripheral group (including practitioners, JS and SO) were consulted at strategic points by email and telephone. We asked core and peripheral group members to set up meetings for their constituent groups, at which some members of the core group explained the research questions and review process, and invited comments.

We also have several international external advisers whom we have used to clarify certain points. The core group is mainly, but not exclusively, academic, and includes a variety of perspectives, including early years education, day care, child development and educational psychology. The peripheral group contains academics from other disciplines such as health and social care, and a variety of practitioner/policy-maker perspectives, including the head of a children's centre and the director of the early years unit at the National Children's Bureau. These peripheral group members have organised meetings for us, where we have explained the processes of the review and invited comment, thereby reaching wider groups of practitioners and policy-makers. This in turn has contributed to core group deliberations on the protocol and refinement of the research questions.

We employed a database expert to undertake database administration, searches and mapping. We also employed two third-year students from the University of East London to assist in scrutinising abstracts. Their contributions have been very useful to us.

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1.6 Review questions

The review question as outlined in the protocol is:

What is the impact of out-of-home integrated care and education settings on children aged 0-6 and their parents and what is known about the processes involved?

As we describe above, most studies have tended to fall within one or another of three main policy agendas: day care, education and the effects of poverty on young children. This means that our review question could be interpreted in two ways: (a) do integrated settings *per se* improve outcomes for children and their mothers (parents), or (b) do integrated settings improve outcomes for children *more* than non-integrated settings? This is discussed further in relation to the nine studies selected for in-depth review.

Subsidiary or more specific questions for the review originally included:

- The outcomes for children in integrated settings in relation to:
 - cognitive/linguistic development
 - social-emotional adjustment
 - health
 - wellbeing and happiness
 - test and exam performance
 - long-term outcomes
- The outcomes for mothers and fathers in relation to:
 - maternal and paternal health and wellbeing
 - maternal and paternal employment rates
 - improved parenting skills and changed relationships with child
- The processes involved in providing integrated settings, and their relationship to outcomes in respect of:
 - staffing
 - pedagogies
 - curriculum
 - health promoting activities
 - access
 - parental support
 - funding

At the in-depth stage of the review, in order to reduce the number of studies and reviews to a manageable number for detailed study, we refined our question to:

What is the impact of out-of-home integrated care and education settings on children aged 0-6 and their parents?

We focused on outcome evaluations on the basis that randomised trials and controlled trials, and to a lesser extent pre- and post- studies, can be used to help answer questions about the effectiveness of an intervention. We excluded

reviews from our in-depth study since they tended to include studies that did not meet our criteria alongside ones that did. We used them as a source of primary studies.

2. METHODS USED IN THE REVIEW

2.1 User involvement

Meetings with users have included:

- (a) a meeting with a British Education Research Association (BERA) special interest group on early years, at the stage at which the research question was being framed (arranged by HJP);
- (b) a meeting with the Greenwich Early Years Development and Childcare Partnership (EYDCP) Training group, at the keywording stage (arranged by JS);
- (c) a meeting with early years co-ordinators and DfES representatives at the in-depth review stage (arranged by SO);
- (d) a meeting with staff and students from the Early Childhood Studies BA course at the University of East London at the in-depth review stage (arranged by HP).

Further meetings at the report stage included:

- (e) a meeting with Sure Start DfES representatives (arranged as a result of c);
- (f) a meeting with Surrey teachers and practitioners (arranged as a result of c);
- (g) a meeting with educational psychologists (arranged by RS and SW);
- (h) a meeting with playgroup representatives (arranged by LB).

We will return to the Greenwich EYDCP and DfES representatives for user presentations of the report.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: inclusion and exclusion criteria

Studies at the mapping stage were included if they met ALL the following criteria.

- (i) *Study focus is on one or more examples of the provision of integrated care and education*
 - where integrated care and education is defined as institutional
 - which is open for at least six hours a day, five days a week
 - with a formally agreed curricular framework and delivery of activities
- and the study is not of*
 - specific teaching methods devoid of their context within integrated care and education
 - the progress of children with disabilities unless the provision also offers integrated care and education
 - primary school-based provision unless it is also stated that it offers extra care outside normal school hours

The full criteria are listed in Appendix 2:1.

At the stage of screening full reports, studies of provision in the US, UK and other English speaking countries were excluded if the above aspects of provision were not reported explicitly. As outlined in the introduction, studies from those countries where type of provision could reliably be predicted were accepted even where hours of care and curricula were not stated (for example, écoles maternelles). During the screening process we developed a table (Appendix 2.5) that indicates which countries have such standard forms of provision, and which countries either had many kinds of provision and/or the situation was unknown.

- (ii) *The provision under study is aimed at children aged 6 years old or younger.*
The provision might ALSO be for older children, for example up to age 8 (current UK childcare legislation refers to children 0-8) but needs at least in part, to be aimed at the birth to 6 age range. Where the age range provided for is wider than birth to 6, 50% of the population being provided for should be younger than 6. We will also include longitudinal studies, where the age of the children during all or part of the intervention meet the above criterion.
- (iii) *The study is evaluative.*
That is, it
 - evaluates the impact of provision on children’s and/ or parental outcomes; and/or
 - is a review of such studies.
- (iv) *The study is published in one of the following languages: Bengali, Dutch, English, French, German or Spanish. These were the languages spoken by the review team.*
- (v) *The study is reported after 1974. Although the concept of integrating education and care is newly emphasized in England there is a long history of various kinds of integrated settings in other countries, particularly in Western and Eastern Europe.*
- (vi) *The study is reported in a format other than a thesis.*

2.2.2 Identification of potential studies: search strategy

Major bibliographic databases and relevant websites were searched; a list is given in Appendix 2.2.

The search structure and the search terms used to search the databases is also given in Appendix 2.2. Since integration of care and education is mostly not indexed specifically, and the indexing language for integration has not yet been developed fully, it was decided to search for reports which combined a word from the list of care concepts (set 1), a word from the list of education concepts (set 2) and a word which indicated an appropriate age (set 3). Further to this, set 4, a separate set of care concepts which intrinsically specified the age range (such as nursery) was combined with the list of education concepts (set 2). Added to this were words which did express the concept of integrated education and care (educare) and names of specific initiatives which were likely to be interesting (set 5). Finally, set 6 reflects the fact that the word ‘nursery’ is used on its own as a care concept, and in combination with ‘school’ as an education concept. It was accepted that this strategy would produce a high level of false drops.

The terms were searched as free text in the subject, title and abstract fields in all databases except the Educational Resources Information Center (ERIC). In this case, the first search produced in excess of 20,000 records, and it was decided to restrict the search terms to those in ERIC's controlled vocabulary, or 'descriptors'. It should be noted that some databases listed do not allow for the combination of sets. In these cases, a simplified search strategy was applied; the major keywords were entered, and the results scanned for items which superficially met the search criteria. The strategy listed is inappropriate for searching websites. In these cases, publications and research lists were scanned applying the inclusion criteria, as for handsearching.

The list of journals which were handsearched can be found in Appendix 2.3.

The search results were stored in a bibliographic database (Endnote).

2.2.3 Screening studies: applying inclusion and exclusion criteria

The abstracts were scanned to make an initial decision about whether they met the inclusion criteria in Appendix 2.1; only those records which definitely did not meet the criteria were excluded at this stage. The remaining articles were obtained and assessed where possible. This screening was undertaken by two students, using the inclusion and exclusion criteria, after initial training by one of the review authors (SP). They were instructed at this stage to leave in items where information was inadequate to make a precise determination. The inclusion and exclusion criteria were further applied by SP while obtaining the reports. The remaining reports were allocated to team members, who also applied the criteria while keywording.

2.2.4 Characterising included studies

The papers included were keyworded using the standard EPPI keywording sheet (EPPI-Centre, 2002a). A second set of keywords was developed to meet the specific needs of the review. Both sets of keywords can be found in Appendix 2.4.

The evaluation studies were categorised according to study design as follows:

- researcher-manipulated – subjects allocated to comparison groups by researcher before intervention;
- naturally-occurring – comparison groups already existing as a result of some previous experience/activity before intervention.

2.2.5 Identifying and describing studies: quality assurance process

The initial screening of abstracts was checked by SP who looked at 2.5 percent.

Keywording was undertaken initially as a group exercise within the team, then 10 articles were keyworded in pairs, with keywording of these 10 also being done independently by a member of the EPPI-Centre staff. Subsequent articles were keyworded individually. One researcher (SP) entered all keywording into the database.

2.3 In-depth review

2.3.1 Moving from broad characterisation (mapping) to in-depth review

For the in-depth review, a further seven criteria were applied independently by two reviewers:

- (vii) *The study evaluates effects on outcomes.*
- (viii) *The study is a primary study and not a review.*
- (ix) *The study is about children's or parents' outcomes.*
- (x) *The study meets reporting quality 1: Are the research questions stated? (consider whether the author(s) provide a succinct statement describing what the study is trying to find out/ explore/ describe/ discover/ illuminate etc. Research questions should be stated in the abstract, in the introduction/background section or in a separate section entitled, for example, 'aims/objective')*
- (xi) *The study meets reporting quality 2: Is at least some information, in each one of the following areas, reported about the methods used in the study?*
 - the tools and/or people used to collect data?
 - how the tools measured/captured the phenomenon under study?
 - sampling and recruitment methods?
- (xii) *The study meets reporting quality 3: Is at least some information given on the sample used in the study (i.e. the units from which the data were collected) for at least two of the following characteristics?*
 - age
 - gender
 - socio-economic status
 - ethnicity
 - health status
 - children attend for how many hours/ full-time or part-time
 - other relevant characteristic

We also came across a tranche of US studies that explored 'full-day kindergartens'. We realised (although it was never directly stated in the studies) that these only applied to one year of school-based nursery education before school started at age 6, and that therefore the setting was a limited one for our purposes. We therefore added one further inclusion criterion:

- (xiii) *Provision starts before the age of 5.*

2.3.2 Detailed description of studies in the in-depth review

Data-extraction was done using a standard set of data-extraction and quality assessment guidelines (EPPI-Centre, 2002b). This was done initially as a group exercise on one study, then in pairs. Two EPPI-Centre staff members participated in quality assurance at this stage. One (RR) worked jointly with other members of the group on the initial study and then as an independent reviewer

on a further three studies. The other (JG) was co-opted to work as an independent reviewer on one study published in French. The reviewing pairs were HP/JG; HP/EL; RR/SB; RR/RS; JM/LB; and RS/SB.

Information from those studies which addressed similar questions was brought together. Studies were assessed using the EPPI system for weight of evidence (high/medium/low). In this system, four weightings are given:

- A: Soundness of method (i.e. the extent to which a study is carried out according to best accepted practice within the terms of that method)
- B: Appropriateness of study type to answer the review question (i.e. appropriateness of methods to the review question)
- C: Relevance of the topic focus of the review question
- D: Overall weight of evidence that can be attributed to the results of the study

Any problems encountered were first of all discussed and negotiated between the pairs of reviewers. The first author of this report (HP) re-read the data-extraction information and, where there was further disagreement, the weighting was renegotiated.

3. IDENTIFYING AND DESCRIBING STUDIES: RESULTS

3.1 Studies included from searching and screening

Details can be found in Figure 3.1.

3.2 Characteristics of the included studies (systematic map)

There were 135 papers included in the systematic map, reporting 98 studies. A total of 34 of these studies were reviews. Sixty-four evaluations were identified. Two reports contained both a review and an evaluation.

Reviews

Only one of the 34 reviews was classified as systematic (Zoritch *et al.*, 2000). This review was reported in two papers.

Twenty-five of the 34 reviews (74%) described outcomes for children, seven (21%) described outcomes for parents and 15 (45%) described processes. Figures add up to more than 34 because these classifications are not exclusive.

Six (18%) compared studies in different countries. Including these, nearly half (15) described studies in the US; nine looked at countries in Europe and nine at countries in the rest of the world. Some were difficult to classify by country because they focused on a type of intervention rather than a geographical area.

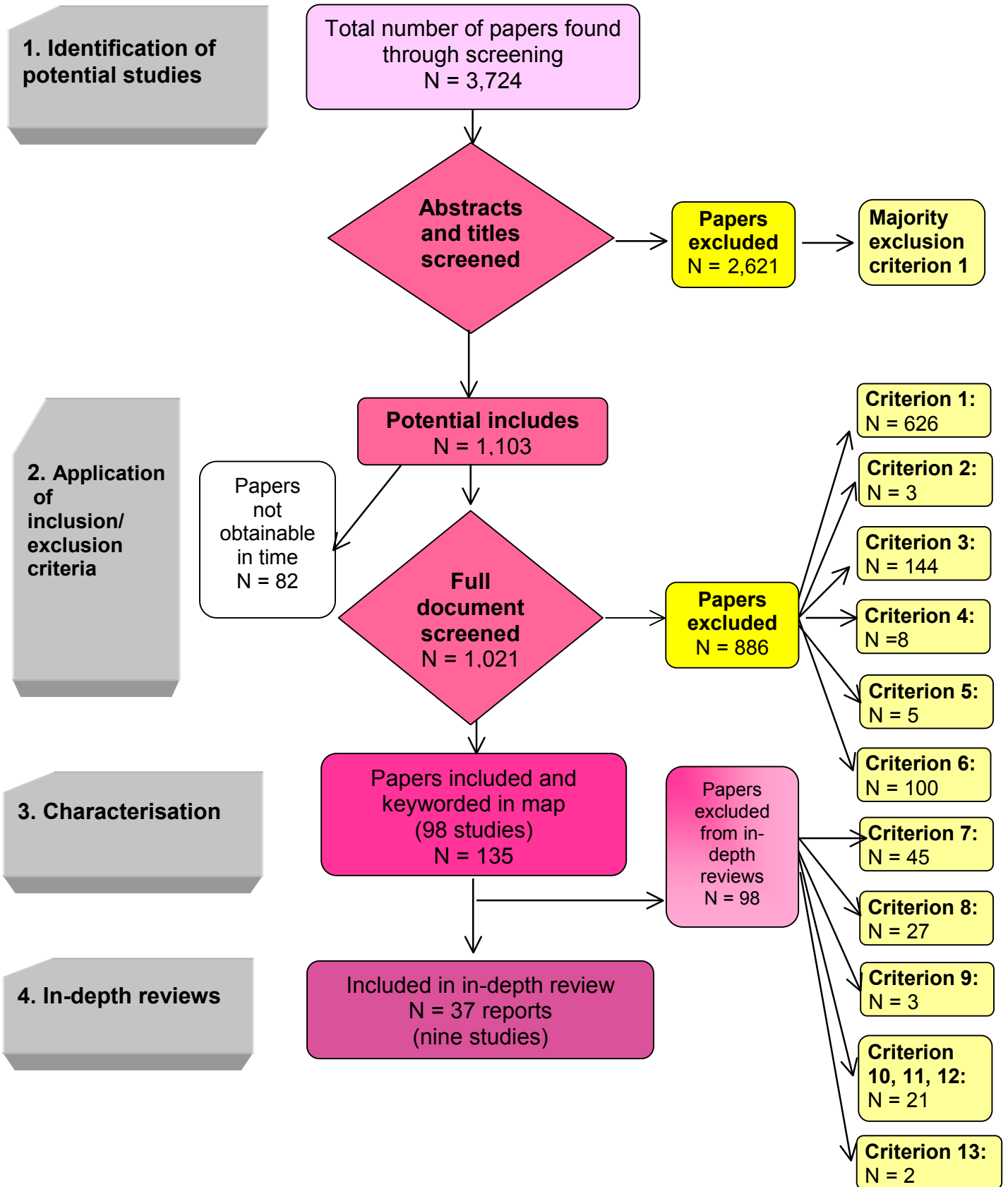
Table 3.1 shows that, while almost all reviews focused on pedagogy and care, the role of curricula and the involvement of parents or the community in the provision of out-of-home care were also of interest to over a third of review authors. Relatively few reviews looked at other aspects of provision, including staffing, health, access or costs.

Table 3.1: The aspects of integration considered by reviews (N=34)

Aspects of integration considered	Number of studies (%)
Access	2 (6%)
Costs	3 (9%)
Curriculum	14 (41%)
Health	4 (2%)
Parenting and community	12 (35%)
Pedagogy and care	28 (82%)
Staffing	7 (21%)

Note: Figures add up to more than 34 because some studies considered more than one aspect of provision.

Figure 3.1: Filtering of papers from searching to map to synthesis



Ten (29%) reviewed evaluations of interventions developed for disadvantaged children.

Evaluations

The 64 evaluations were reported in a total of 102 papers. A total of 51 studies were reported only in one paper. The remaining 51 papers described only 12 studies. One study (Campbell *et al.*, 2001) accounted for over 20 of these papers.

As Table 3.2 indicates, the majority of studies were conducted in western Europe.

Table 3.2: Countries studied (N=64)

Country(ies)	Number of studies (%)
Western Europe – including the UK (13), the Nordic countries (11), the Netherlands (4) and France (3)	34 (53%)
Eastern Europe	3 (5%)
USA	17 (27%)
Canada	4 (6%)
Rest of the world, including New Zealand (4).	13 (20%)

Note: Figures add up to more than 64 because some studies covered more than one country.

Twenty-eight (44%) of the studies recorded that the children participating attended full-time (i.e. at least 30 hours a week). Eight (13%) specified that the children attended part-time. The rest of the studies did not specify children's attendance in sufficient detail for analysis. Six (9%) recorded that the children were socio-economically disadvantaged.

Table 3.3 shows that, as was the case for reviews, relatively few evaluations looked at the staffing, health, access or cost aspects of provision.

Table 3.3: The aspects of integration considered by evaluations (N=64)

Aspects of integration considered	Number of studies (%)
Access	5 (8%)
Costs	3 (5%)
Curriculum	20 (31%)
Health	3 (5%)
Parenting and community	15 (23%)
Pedagogy and care	58 (91%)
Staffing	16 (25%)

Note: Figures add up to more than 64 because some considered more than one aspect of provision.

Forty-four (69%) of the studies described processes; 29 (45%) described outcomes for children; five (8%) described outcomes for parents; two (3%) described outcomes for communities; and five (8%) described outcomes for service providers.

3.3 Identifying and describing studies: quality assurance results

The independent double screening of abstracts resulted in 95 percent agreement. In most cases, the students selected articles which the researcher would have excluded (the fail-safe option). The quality assurance of keywording by EPPI-Centre staff found few disagreements. These centred around classification of study type.

4. IN-DEPTH REVIEW: RESULTS

4.1 Selecting studies for the in-depth review

Nine studies were selected for in-depth review, using the inclusion criteria presented in 2.3.1.

4.2 Comparing the studies selected for the in-depth review with the total number of studies in the systematic map

Excluding review papers, 14 percent of the studies included in the map were selected for the in-depth review. The reasons for excluding reports are presented in Figure 3.1. This shows that the majority of papers in the map but not in the in-depth review reported either reviews or evaluations of processes that did not also evaluate outcomes.

4.3 Further details of studies included in the in-depth review

Nine studies, comprising 37 reports, were selected for the in-depth review. Of these, five studies appeared in more than one report. Of the nine studies, two were of related interventions – the Abecedarian project (Campbell *et al.*, 2001) was an evaluation of an initiative that built upon the structures and findings of Project Care (Roberts *et al.*, 1989). Details of the nine studies are elaborated in Table 4.1. The reports associated with the studies are listed in Appendix 4.1.

Randomised controlled trials are commonly regarded as the most rigorous type of study for answering impact questions, although not necessarily relying exclusively on quantitative data (Oakley, 2000). Only two of the nine studies were randomised controlled trials, both undertaken in the US. The other studies compared outcomes for already existing matched groups. All the studies provided outcome data for children. Three provided outcomes for mothers. Other issues raised in the studies included means of access to the provision; costs of provision; curriculum; health of children; parenting and community, pedagogy and care, and staffing.

The studies are drawn from six countries: three from the US, three from Nordic countries, and one each from France, Korea and Israel. Two of the US studies targeted low income multi-problem families; two focused mainly on middle-class families, and the others drew on mixed social groups.

There were three US studies included in the review. Two of these studies, Campbell *et al.* (2001) and Roberts *et al.* (1989), were concerned with the efficacy of early intervention for children born to low-income, multi-risk families. These studies were randomised controlled trials, carried out to a high standard, and using measures developed in the US. These studies concluded that the

specific education and care intervention had a positive impact on outcomes for children. The Campbell *et al.* (2001) study found a range of cognitive gains, with differences between experimental and control group observed through to age 21. The Roberts *et al.* (1989) study suggested that home visiting amplified the effect of the education and care intervention, but that home visiting on its own, without the education and care, produced no effect. In both these studies, the early interventions were set up specifically for the purposes of the study and were not standard or universal provision.

The third US study (Finn-Stevenson *et al.*, 1998) was carried out in a predominately middle-class area, and addressed our review question directly. It was also a study of the process of setting up integrated care and education provision. Unfortunately, it was not a randomised controlled trial and was weak in design and execution. We cannot therefore rely on its findings, although we would agree that the range of issues it introduces is worthy of investigation. In particular, the process and the staffing issues appear to be important.

The French study (Balleyguier, 1988), like two of the US studies, was concerned with disadvantaged children, but only in the context of children's performance *within* universal services. It argued that middle-class parents were more likely to access public services earlier than do working-class families, and this may affect outcomes for their children, those who entered earlier performing better than others.

There were three Nordic studies included in the review: one Norwegian and two Swedish (Hartmann, 1991; Andersson, 1989; and Broberg *et al.*, 1997). All three studies concluded that children, who entered education/day care early and/or had attended for a longer period, had better outcomes than those who did not. The samples were socially mixed and the provision the children attended was, in each case, a well-established, universally provided service. These studies did not use randomised controlled trials, were less well designed and comprehensive than the first two US studies, and in part used measures that had been developed for use inside Scandinavia and had not been trialed elsewhere. The reviewers considered nonetheless that the results were fairly robust.

There was also one Korean and one Israeli study. The Korean study (Lee, 1993) refers to an especially set up university-based programme. There were considerable weaknesses in the study design, especially in sampling procedures and data-analysis, and the findings are too unreliable to cite. The Israeli study (Rosenthal, 1991) found that kibbutz education/day care produced slightly better outcomes for children than private day care or family day care, but stressed that the results were complex. The training and competency of individual staff may have been an important factor. This point is a useful one. The Nordic and French studies were investigating settings where the standards of staffing, such as the training, pay and condition of the workers, were universal within the system, and could be taken for granted. The US studies were investigating interventions which had been specially set up, and were not typical. However the staffing issues were reported and discussed in only one other intervention (Finn-Stevenson *et al.*, 1998).

We stress that the overall context of the studies varied considerably, from intervention studies for deprived, mainly African-Caribbean populations in the US, to studies of outcomes for children from all socio-economic levels in universal state-funded systems in Nordic countries where 'deprivation' was not a concept that was used.

Table 4.1: Characteristics of studies included in the in-depth review

Author, date and country	Study type	Aim	What was studied?	How was it studied?
Andersson (1989) Sweden	Naturally-occurring retrospective evaluation	Effects of age of entry to day care and type of day care on children's cognitive and social development and school achievement	<ul style="list-style-type: none"> • Sample: 128 families in eight neighbourhoods in Stockholm and Goteborg in Sweden representing low and middle-class families¹. Children first recruited at 3-4 years in children's centre. Families surveyed at this point to determine background characteristics and previous day-care experience. Sampling frame unclear. • Intervention: Children experienced a variety of home and out of home care: 54% had experienced center care by age 7. • Measurement: Children remaining in study at age 8 tested using verbal and non-verbal tests of cognitive development and teacher ratings of academic achievement and social competence. 	<ul style="list-style-type: none"> • Use of pre-existing differences to create comparison groups. Day care history mapped; children allocated for analysis to 1 of three groups, depending on type of care before school entry: (i) centre care; (ii) family/childminder care; (iii) mixture of (i) and (ii). Age of entry into day care also used as predictor variable. • Groups compared on test results at age 8, controlling for family background. • Method of analysis: hierarchical regression analysis, analysis of covariance.
Balleyguier (1988) France	Naturally-occurring retrospective evaluation	Effects of type of care and age of entry to école maternelle on children's cognitive, social and personal development	<ul style="list-style-type: none"> • Sample: 125 children aged between 3 and 4 years from all socio-economic levels in the region of Tours in France. Sampling frame unclear. • Intervention: All children attended écoles maternelles. • Measurement: Children were tested approximately one year after entering école maternelle. Mothers completed questionnaire on family circumstances; mothers completed 'journal de bébé' about maternal attitudes; teachers completed an assessment of child's socio-emotional competence in école maternelle. 	<ul style="list-style-type: none"> • Use of pre-existing differences to create comparison groups. Early day care history mapped, children allocated for analysis to 1 of four groups, depending on type of care before age of entry (at home; childminder; crèche; multiple arrangements). • Groups compared on test results at age 3-4, controlling for family background. • Method of analysis: Unclear. Results presented as a table of variance.

¹ **Note:** Social class differences are likely to be less pronounced in Nordic countries than in the US or UK. Most centre care is publicly provided on a neighbourhood basis.

Author, date and country	Study type	Aim	What was studied?	How was it studied?
Broberg <i>et al.</i> (1997) Sweden	Naturally-occurring prospective evaluation	Study to investigate the impact of family social status, quality of both home and out-of-home care, perceived family social support and various child characteristics on the verbal ability of pre-school children. 1997 analysis focused on mathematical ability, and its relationship to above factors.	<ul style="list-style-type: none"> • Sample: 146 first-born children from low and middle-class families taken from waiting list for day care centres in Goteborg, Sweden. Recruited at age 12-24 months. • Intervention: Public children's centres. • Measurement: Baseline measures of parental SES; social support; parental involvement checklist; children's temperament; quality of home environment; quality of the out-of-home care arrangement. • Children tested for verbal ability, mathematical ability at ages 28, 40, 80 and 101 months of age. • Observations of children by trained observers of sociability with strange adult and peer relations. 	<ul style="list-style-type: none"> • Use of pre-existing differences to create comparison groups (although on waiting lists at time of recruitment, not all children were ultimately assigned public day care places). Three groups: centre-based care; family day care; and homecare. • Groups compared four times up to age 8 on tests. • Method of analysis: ANOVAs, PLS analyses. Correlations, regression analysis. All analyses were conducted twice on sub-samples.
Campbell <i>et al.</i> (2001) USA	Researcher-manipulated prospective evaluation - RCT	Series of studies (known as the Abecedarian project) to assess the impact of educational day care provided from birth to age 5 on the children's and parental outcomes in multi-risk families	<ul style="list-style-type: none"> • Sample: Families referred to project through local hospitals, clinics, social services and other referral services. 120 families (122 children) from African-Caribbean low-income multi-risk families identified as eligible; 111 children aged between 3 and 6 months actually recruited. • Intervention: Specially set up programme offering full-time day care and highly specific education curriculum. • Measurement: For children (not reported for mothers in studies seen): IQ; communication skills; academic achievement; special needs at school; social adjustment; vocational skills through to age 21. 	<ul style="list-style-type: none"> • Children allocated by researchers to experimental and control groups. • Groups compared at regular intervals up to 54 months across a battery of tests, then subsequently on academic achievement and social adjustment up to age 21 (e.g. criminal charges incurred). • Methods of analysis: Various, since complex data collected: includes analysis of variance, mediation analysis, hierarchical regression models.

Author, date and country	Study type	Aim	What was studied?	How was it studied?
Finn-Stevenson <i>et al.</i> (1998) USA	Naturally-occurring prospective evaluation with integral evaluation of implementation	The study aimed to track children's progress within 'School of the 21 st century' (S21C), a new 'comprehensive program of childcare, early education and family support from birth to 12 years old based in a neighbourhood school'	<ul style="list-style-type: none"> • Sample: 120 families (185 children) in intervention group, 50 (83 children) in matched group, recruited from mainly middle-class locality in Missouri, USA. Families selected had a pre-school child. Sampling frame unclear. • Intervention: S21C. • Measurement: Staff perceptions of S21C; Parenting Stress Index; ECERS; attainment tests for children. 	<ul style="list-style-type: none"> • Use of pre-existing differences to create comparison groups. Families who attended S21C were compared with a matched group who did not. • Outcomes for children compared across groups at baseline and annually for the next two years. Also evaluated implementation of S21C; on assumption that introduction of a radical new programme is problematic. • Methods of analysis: The basis of all analysis is unclear; results presented without adequate explanation.
Hartmann (1991) Norway	Naturally-occurring retrospective evaluation	The study aimed to examine the influence of Norwegian public day care compared with exclusively parental care on children's intellectual functioning on entering primary school.	<ul style="list-style-type: none"> • Sample: 76 children, 38 in public day care and 38 who had no day care experience, recruited at age 6-7 in Oslo and Bergen. Children then matched for mother's age, occupational status, family SES level. Sampling frame unclear. • Intervention: Children with experience of Norwegian public day care for at least three years. • Measurement: Performance with regard to Norwegian instrument 'The running horses game' designed to investigate mother-child interactions and children's social competence and negotiating skills. 	<ul style="list-style-type: none"> • Use of pre-existing differences to create comparison groups. Children with day care experience compared with children with none. • Comparison on performance in 'Running horses Game' at 7 years. • Methods of analysis: Descriptive statistics, principal component analysis and linear regression.
Lee (1993) Korea	Naturally-occurring prospective evaluation	Evaluation of short-term and long-term effectiveness of specific university-based education and day care programme	<ul style="list-style-type: none"> • Sample: 32 children, 14 from high-income high SES families in experimental programme, 14 in 'comparison' group, four in 'control' group. Children aged 0-4, of whom 23 aged 4. • Intervention: University-based education and 	<ul style="list-style-type: none"> • Comparison of pre-existing differences. Matching unclear but children in experimental programme compared with matched children on waiting list for programme ('comparison' group) and matched children in another, unspecified 'control' day-care programme in same city.

Author, date and country	Study type	Aim	What was studied?	How was it studied?
			<p>day care programme.</p> <ul style="list-style-type: none"> • Measurement: Developmental profile of children, self-completion questionnaire for mothers. 	<ul style="list-style-type: none"> • Baseline measures for experimental group only: All groups compared after one year. • Methods of analysis: Wilcoxon test, but within experimental group only; no statistical comparisons between groups.
Roberts <i>et al.</i> (1989) USA	Researcher-manipulated prospective evaluation - RCT	The study aimed to examine whether an educational day care programme supplemented with a parent education programme results in more positive cognitive outcomes than either a programme without such a supplement, or a parent education programme on its own.	<ul style="list-style-type: none"> • Sample: 65 children from poor, mainly African-Caribbean families recruited from local hospital at birth; 17 randomly allocated to educare plus parent education group; 25 in family visiting group; 23 in control group. Children entered study at birth. • Intervention: Child Development centre offering day care with highly specific education programme and home visits from paraprofessional every 1.5 weeks and monthly parent group meetings. • Measurement: Observation (audio and videotaped); academic achievement test; IQ test; Caldwell home inventory; mother's attitude test. 	<ul style="list-style-type: none"> • Outcomes for intervention and non-intervention groups compared. • Multiple comparisons over a five-year period. • Methods of analysis: Complex data sets; variety of methods, including multivariate repeated measures test for each IQ measure; multivariate analysis of variance; if MANOVA significant, univariate ANOVA tests examined, followed by pairwise comparisons amongst treatment groups.
Rosenthal (1991) Israel	Naturally-occurring cross-sectional evaluation	Study aimed to compare Kibbutz care with family day care and private day care centre care; and to investigate the effect of caretakers and children's backgrounds on daily experiences of children.	<ul style="list-style-type: none"> • Sample: 85 toddlers, 20 in kibbutzim, nine in day care centres, 20 in FDC. No details about socio-economic status, but mother's age and years of education given, and comparability of groups is assumed. Children randomly selected from wider pool of users in those settings. • Intervention: One of three types of out-of-home setting. • Measurement: One-off observational – time-sampled observations of adults and children; ECERS; daily logs (field notes) of events by observers. 	<ul style="list-style-type: none"> • Comparison of pre-existing differences to create comparison groups. Children in three centres compared at one time point. • Comparison of range of activities undertaken by children at one time period then related to quality of environment, and caregiver behaviour. • Methods of analysis: One-way ANOVA on all measures; two-stage stepwise multiple regression analysis; ANCOVA used to control for potential effect of differences in caregiver qualifications between settings.

4.4 Synthesis

Table 4.2. presents the author's main findings for each of the nine studies in the in-depth review alongside the weight of evidence accorded each study by the review team and the review team's subsequent conclusions about what can be said from each study.

Our question concerned the impact of the integration of care and education of out-of-home settings on children aged 0-6 and their mothers and fathers. We wished to ascertain whether it would make a difference to children, especially those whose mothers were at work, to receive care and education in one place, rather than experiencing several different settings; and whether it would make a difference to mothers and/or fathers, in relieving the stress of making a patchwork of arrangements to cover care as well as education timetables and locations. However, only one of the nine studies, Finn-Stevenson *et al.* (1998), dealt with this question directly. In the other eight studies, there were no comparisons with separate education and care interventions. In retrospect, this is not surprising since the three Nordic studies and the French study referred to public systems of education and care where, at least after the age of three, there was a standard, integrated, provision for all children. Our review therefore addresses primarily the question about whether or not integrated settings provide good outcomes for children and their mothers (parents) but is unable to address the question, of relevance to the UK in particular, about whether integrated settings are significantly better than separate education and care arrangements.

All the studies found that children showed cognitive and socio-emotional gains from attending integrated provision, although two of those studies (Finn-Stevenson *et al.*, 1998 and Lee 1993) were given low weightings, and cannot be used to support any conclusions, except in so far as they introduce issues for policy debate. Four of the studies (the three Nordic studies and the French study) were also concerned with children's age of entry to the setting, and how this might influence subsequent adaptation and behaviour within the setting.

Table 4.2: Synthesis: data-extraction summary tables; weight of evidence

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D: Overall	
Andersson (1989) Effects of public day care: a longitudinal study	Children with early entrance to centre care or family/childminder care (before aged 1) were generally rated more favourably and performed better than children with late entrance or home care. There was a tendency for early centre care to predict a more favourable outcome than other care.	<i>Medium</i> Sampling and allocation to groups explained; evidence that efforts made to control for confounding variables (four family variables and sex of children entered into analysis); detailed statistical analysis.	<i>Medium</i> Hierarchical regression techniques to examine influence of a range of variables. Mapping of childcare careers allowed for exploration of influence of age of first experience of non-home care and influence of different types of non-home care settings. Limitations due to retrospective nature of data for child's first three years. Potential influence of unmeasured variation between sub-groups created for analysis remains unclear.	<i>Medium</i> Public children's centers in Sweden are standardised to a recognised high quality and offer access to children from all socio-economic levels. School does not start until age 6-7. Study does not address question of parent outcomes.	Medium	Reviewers accept the case that centre and family/childminder day care in Sweden produced good results compared with home care in this study, but express caution about generalisability of results outside Nordic countries.
Balleyguier (1988) Le développement socio-emotionnel d'enfants ages de 3-4 ans, selon leur mode de garde antérieur	Different kinds of care experienced before entering école maternelle (EM) continue to influence behaviour at EM. Mothers show more controlling attitudes to children brought up at home and such children more timid at	<i>Medium-low</i> Sampling and allocation to groups clearly explained, measures appropriate, but statistical analysis presented in tabular form and unexplained. Results and conclusions somewhat conflated.	<i>Medium</i> Clearly set out research questions and four-group design enables comparisons to be made between different kinds of prior experience, but analysis is unclear and findings are presented in a summary fashion	<i>Low</i> Somewhat tangential, since arguing that circumstances prior to EM remain a powerful determinant of child's behaviour; no effect sought or recorded from EM	Medium-low	Reviewers have some concerns about designation of groups: e.g. assistante maternelle category includes nannies and informal care, such as grannies. Most concern about weak reporting of analysis of data.

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D: Overall	
	school; children who have been at public crèches are more confident and sociable. Low SES mothers more likely to delay entry to EM.		without adequate information about analysis.	itself. Does discuss the parental processes likely to be involved in making decisions about when to begin EM.		Care and education arrangements specific to France, and results may not be generalisable outside France.
Broberg <i>et al.</i> (1997) The effects of day care on the development of cognitive abilities in eight year-olds: a longitudinal study	Children who had attended centre-based care, consistently performed better on cognitive tests than other children; particularly if they had entered day care early.	<i>Medium-high</i> Longitudinal study with sophisticated analysis. Group allocation slightly problematic, since composition of groups changed over time; but statistical analysis compensated for this.	Medium Children with different experiences of centre-based care compared over a six-year period.	Medium-high The study suggests that centre-based care produces better results than other forms of care across social classes. Also discussed effect of parental status/attitudes on children's cognitive outcomes compared with effect of day care itself (minimal), although not the other way around, the effect of centre care on parents.	Medium-high	Reviewers accept case that public day care in Sweden as measured in this study produced good results, but as above, question the generalisability of this study outside Nordic countries.
Campbell <i>et al.</i> (2001) The development of cognitive and academic abilities:	IQ tests for experimental group maintained at or near national average from 18 months to age 21. Therefore 'compensatory	<i>High</i> Good design, careful sampling, well-reported, detailed statistical analysis, findings and conclusions separately laid out.	<i>High</i> Two-group study design allows for comparison of children receiving out-of-home care with children who have not received this	<i>Medium-high</i> Study focuses on IQ, which is relevant to review question. It is unclear about how applicable the intervention would	Medium-high	Well-executed study. Reviewers concur with findings. However, multi-risk targeted sample and specially constituted programme mean that

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D: Overall	
growth curves from an early childhood educational experiment	education can work'. Positive findings with respect to academic skills, grade retention, and increased years of secondary education supports policies favouring early childhood programmes for poor children. Narrative and discourse skills may be an important element in accounting for success. No conclusions possible about reducing delinquency or preventing adult crime.		intervention. Use of random allocation to the groups allows for greater certainty that any differences seen between the groups are due to the effects of the different education/care experiences. Use of analysis of variance techniques in the examination of impact on IQ allows for other factors to be tested as alternative explanations of the effects seen.	be to other population groups. Study provides findings on impact of out-of-home intervention on parents (linked report).		results may not be generalisable outside US, where such targeting and programme packages are unusual. No account given of processes in setting up programme; these treated as unproblematic.
Finn-Stevenson <i>et al.</i> (1998) Linking childcare and support services with the school: pilot evaluation of the School of the 21 st Century (S21C)	Children who attended S21C as pre-schoolers had better academic outcomes over a three-year period. The parental stress index suggested parental stress decreased as a result of the intervention. The childcare staff, principals and teachers all acknowledge the convenience and affordability of the S21C model. Principals noted	<i>Low</i> Self-selection of sample introduces bias; lack of data about attrition rates makes it difficult to draw conclusions about sample. Other findings poorly reported. Information about data analysis non-existent	<i>Low</i> The self-selection of the sample meant that the hypotheses could not be reliably explored. The study veered between being a descriptive account of processes of implementation, and a comparison of outcomes for children and parents, but in both cases there was very little information about the samples, no account of data	<i>High</i> The study is an evaluation of the implementation of a well-known and large scale programme, S21C, which directly addresses the question whether integrated care, education and health facilities for children aged 0-6 leads to better outcomes for children and parents than does separate	<i>Low</i> The study is very weak in its reporting and methods.	Reviewers agree that this is a study of an influential programme, S21C, that addresses policy debates about flexible schooling. Also makes useful point: that implementation of new programmes may be time-consuming and difficult, and the process warrants investigation in its own right, particularly the monitoring of staff variables. But study

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D: Overall	
	parents' support and enthusiasm for the S21C's childcare programme. Authors conclude S21C model was effective and affordable and can be implemented without any major obstacles.		analysis or explanation of findings. The conclusions do not relate to the information contained in the study.	education and care regimes. (The study is the first of a series which also examines school-based, out-of-school care arrangements for older children.)		Is marred by poor sampling, poor reporting, and lack of information about data analysis. The conclusions about staff views were not evidenced at all in the study. Study of value only in highlighting range of issues which warrant investigation.
Hartmann (1991) Effects of day care and maternal teaching on child educability	The differences between the day care and home-reared children are consistent with other research findings indicating that children who have experienced day care of high quality generally perform cognitively better than exclusively parental reared children. The findings support the view that well-organised, public day care with well-trained staff and high adult-child ratios has an immediate facilitating effect on the educability of children.	<i>Low</i> Sample frame not clear; no baseline measures, test instrument developed by author and not widely known; data analysis not fully justified.	<i>Medium</i> Two-matched group design allowed for comparison of children attending children's centres and children cared for at home, allowing for greater confidence that any differences observed are due to effects of education/care. Use of linear regression techniques enables variety of variables to be analysed, allowing for development of model to depict the nature of impact.	<i>Medium</i> The study focuses on the impact of type of education and care on children's cognitive function aged 6-7, which is relevant to the review question. It is unclear how generalisable the results are beyond the Nordic population. Maternal styles investigated, but no measures on impact on parents.	Medium-low	The reviewers accept the conclusions about the positive outcomes for children of attending children's centres, but have reservations about the extent to which the findings can be generalised outside Nordic countries, where public provision is available for all children and is of high quality, and SES differences in the population are less pronounced than elsewhere.

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D: Overall	
Lee (1993) Effects of a developmental childcare programme in Korea	Rearing in a group setting did not produce negative effects on children's development, and programme children improved more consistently than other groups. Parents' perception was that the program definitely did help family functioning.	<i>Low</i> Intervention itself described well, but no detail about sampling; intervention and control group, samples not described well, and no information about how differences between them explored. Numbers very small.	<i>Low</i> A three-study-group design would allow for comparisons, but the method of creating groups for analysis means that groups may already differ in important ways, so effects unclear. No reporting of statistical analysis, so differences that appear could be due to chance alone.	<i>Medium</i> The application of an English pedagogical approach in a South East Asia context is interesting but the extent to which findings from a university-based setting for advantaged SES families could be generalised for general population is unclear.	Low	The reviewers do not consider that this study can be used as evidence in answering the review question.
Roberts <i>et al.</i> (1989) Language skills of children with different pre-school experiences	Children who receive educational day care (CDC) plus family support (FE) show more positive outcomes than children who receive only family support or no intervention. Children who attend CDC and receive FE also show a significantly greater proportion of high quality topic manipulation skills during conversation. No intervention effects on mother's attitudes to childrearing.	<i>High</i> : For finding that an intervention of CDC+FE results in greater mean child IQ over a 54-month period than does FE alone. <i>High</i> : For finding that CDC + FE results in higher mean IQ levels than an open control group at 12, 18 and 24 months but not 36 months or thereafter. <i>Low</i> : For finding that CDC + FE influences children's language skills more than FE alone or control group, although the raw data is presented in full and could be reanalysed.	<i>High</i> Three-group-study design, and random allocation to groups allows for greater certainty that differences are due to interventions. Use of analysis of covariance techniques in examining impact of language allows for other factors to be tested as alternative explanations.	<i>Medium</i> Study focuses on impact on IQ and language, both of which appear relevant to review question. However, study provides no findings about the impact of out-of-home intervention.	Medium-high	Reviewers consider there is no evidence for or against any beneficial effect after 24 months for CDC +FE over FE alone. Reviewers consider there is no evidence of any differential effect for language for CDC +FE over FE alone. No evidence for or against effect on home environment or mothers' attitude, since it is not clear whether the study was sufficiently powered to examine

Study ID	Authors' report of findings	Weight of evidence				Reviewers' report of study findings
		A: Soundness of study within design: how well was it designed and carried out?	B: Ways in which this type of study helps to answer review question	C: How close is the topic focus to review question addressed?	D. Overall	
						such an effect. Highly targeted sample and nature of intervention may not be generalizable beyond USA.
Rosenthal (1991) Daily experiences of toddlers in three childcare settings in Israel	Kibbutz children tended to engage in more learning experiences and in social behaviour, but type of childcare setting alone cannot explain variations of quality of environment. Although different types of care may serve different populations, it is the investment in personnel and other 'structural' aspects of the programme that determine the daily experiences of toddlers.	<i>High</i> The sampling was randomised within settings. Design attempted to control for a wide range of variables comparing children's experiences across settings. Data analysis thorough and reliability and validity were addressed. Only source of bias lies in the fact that the observers/ researchers needed to interpret the questionnaire and FDC rating scale.	<i>Medium</i> The three-group design allowed for comparison of children attending three different settings. Groups matched on age and parents' education, thus allowing for greater confidence that differences are due to effects of type of setting attended. Stepwise multiple regression techniques enabled a variety of variables to be analysed.	<i>Medium</i> The study focuses upon the impact of type of education and care on children's cognitive function, which is relevant to review question. It raises questions of process, particularly staff variables. It does not measure impact on parents and does not help with this aspect of the question. The study examines a type of setting unique to Israel, the kibbutz.	<i>Medium-high</i>	The reviewers agree with the authors' conclusions. The findings about staff again raise useful broader issues. However, the reviewers are concerned about the generalisability of the study outside Israel.

4.5 Quality assurance results

There were some inconsistencies between reviewers in weighting the trustworthiness of the studies. The whole group met once Table 4.2 was drafted, to look again at the consistency of the weighting. As a result, several of the weightings were revised. For the overall weighting the following criteria were then applied:

- High – only if A, B, C all rated as high
- Medium – only if A,B,C all rated as medium or high, with sub-categories of medium high if one or two of them rated as high; or medium low if one rated as low
- Low – where two or more rated as low

4.6 User involvement in review

Our review question was initially shaped by the concerns of users (practitioners in various settings, local authority co-ordinators, national advocacy groups, governmental policy-makers), and members of the core group and the peripheral group will discuss the draft review with various user groups. In this field, the terminology is not precise, and 'user' may mean teacher, nursery assistant, day care-provider, head of centre, practitioner, training-coordinator, Sure Start co-ordinator, playgroup leader, or childminder. All these groupings have attended one or another of the various user group meetings that have been held. Generally we have taken the view that teachers, playgroup workers, etc. could be asked to make comments from the particular perspective of their constituency, even if they were not in any sense formal representatives. Mothers and fathers are likely to speak from a more individual perspective. We have contacted the Day care Trust, who claim to represent parents' interests, and have also relied on our members and those users with whom we have already been in touch, many of whom are also parents, to contribute from a personal as well as a professional point of view.

5. CONCLUSIONS AND IMPLICATIONS

This chapter gives an overview of the conclusions of this review. We discuss the issues arising from our identification, description and analysis of studies as part of this review. We consider the strengths and limitations of this review, and consider the policy, practice and research implications of what we have found.

5.1 Summary of principal findings

5.1.1 Mapping evaluative research on integrated education and care

A systematic map identified 135 papers reporting 98 studies. As well as reviews of research, 64 evaluations of integrated education and care were identified. Much of the research literature in this area reports only on the processes of implementation. Fewer studies report on outcomes for children or parents.

5.1.2 Synthesis of findings from studies in the in-depth review

Nine studies were found that evaluated the impact of out-of-home integrated care and education settings on children's outcomes, while also meeting basic standards of methodological reporting. The contexts of these nine studies varied widely. They covered six countries – France, Israel, Korea, Norway, Sweden and the United States (none were carried out in the UK) – and a range of social groups. Two studies targeted low-income multi-problem families, two focused mainly on middle-class families, and others drew on mixed social groups. Research methods also varied: the reports included retrospective, prospective and longitudinal studies. Three studies used comparison groups, two used random allocation to these groups.

Despite the use of quality criteria when screening studies for inclusion in the in-depth review, the nine studies varied significantly in the quality of research and reporting. Using the EPPI weight of evidence system, five were rated medium or medium-high, and none were rated high. Two of the studies were assessed as contributing low weight of evidence because of inadequate reporting of methods.

The remaining seven studies found that, broadly speaking, the impact of integrated care and education was beneficial for children, especially children from multi-risk families, and that early age of entry to such provision was advantageous

5.2 Strengths and limitations of this systematic review

This is the first systematic review of which we are aware that synthesises evaluative research of integrated education and care. In the one previous systematic review of day care known to the authors (Zoritch *et al.*, 2000), studies are not limited to those providing full day care with an educational curriculum.

In this section we first discuss the difficulties we encountered in reviewing a topic of interest to a UK policy and practice audience where little research has been conducted in UK settings. We next discuss particular methodological difficulties encountered in undertaking this review. We then further discuss aspects of the research encountered during this review which make interpreting findings in this area difficult.

5.2.1 Issues in providing a UK focus

The review was originally intended to address a topical policy issue in the UK, that is the research evidence on the impact on children and their parents of the integration of care and education in the early years. As we suggested at the beginning of this review, the Government's focus on integration is relatively new. One study evaluating this approach in a randomised controlled trial carried out in London was published after we completed our review (Toroyan *et al.*, 2003). This study would have met the criteria for inclusion in the in-depth review. As has already been said, other UK-based studies did not meet our inclusion criteria or else have been too badly reported to be considered.

There are two studies of tangential relevance, both of which have been published very recently. The first is the findings of the Effective Provision of Pre-School Education (EPPE) study, *Measuring the Impact of Preschool Education on Children's Cognitive Progress over the Pre-School Period*. This study did not record the hours of attendance of children, stating that this was not a useful indicator of cognitive development. The study was also concerned with cognitive gains rather than access of mothers to the workforce. The study did include 'integrated' care and education settings, but used a different definition of 'integrated', and did not make clear whether children attended such settings on a full-time (i.e. six hours per day or more of care) basis. The second is a study by Christine Skinner (2003) *Running Around in Circles* which looked at the impact on working mothers of not having integrated provision, and the strain that making complicated and separate arrangements for education and childcare for their young children made upon them.

Our review focused on the impact of combined education and care settings. Although we consider that our findings *are* relevant to the current UK policy debate, none of the studies we included in our in-depth review were carried out in the UK.

5.2.2 Methodological difficulties in conducting this review

We decided that our review would be international in scope, because we wanted to take a broad view of the evidence. However, this presented us with a series of problems.

There was some difficulty in applying keywording criteria because of the considerable differences in provision between countries. Although we cross-referenced continually in the group, it became evident at the subsequent stage of deciding which studies should go forward for in-depth review, that keywording had been interpreted slightly differently amongst members, in particular on curricular issues. We had presumed a unity of settings within and across countries, and assumed that our criteria of defining education as 'a formal curriculum' and 'care' as encompassing more than six hours, would enable us to decide which studies were most relevant. It became obvious that not only were

there significant differences within and between countries in the settings provided for children, but, whilst in some instances it was possible to predict from the name of the setting what was being provided, in other cases, in particular in the US and the UK, the name of the setting did not necessarily indicate whether care or education was being provided.

For some countries, there are state-funded and regulated systems, and the care and education have been assumed to be present, even if unstated. For other countries (for example, New Zealand and, since 2001, the UK) there are state-regulated curricular programmes in place, but the day care is unstated. For others, we could make no assumptions about what was provided and we therefore required it to be stated. At this point, the convener of the group (HP) produced the schematic chart of provision which listed countries by type of care and education arrangements, which enabled more precise categorisation of studies (Appendix 2.5). Some articles that had been keyworded were then excluded from the map retrospectively at the data-extraction stage, because they did not fully meet the requirement that both education curricula and hours of care should be known and/or stated.

Once our criteria had been clarified, we refined our research question further, in order to decide which kind of study was likely to give us the most information about our research question. We focused only on evaluative studies that asked questions about the outcomes for children and/or parents of children attending integrated settings, but decided not to include studies that only focused on process. We also only included primary studies. We decided not to include reviews because they all included a variety of material, only some of which was directly relevant to our question – in which case it was already included.

At the data-extraction stage, we encountered further problems of making comparisons across countries. The sampling frames were very different, which we have highlighted in the synthesis. The measures used were also different. Two of the studies used tests that had been derived in that country and, as far as we knew, had not been used or validated outside the specific system that the test was set up to measure. School attainment tests, which a number of the studies used as an outcome measure, were related to the school system, and were not directly comparable across countries.

The problems we have encountered indicate the insularity of much of the research we have reviewed. Researchers have assumed that the circumstances of the setting in their country will automatically be known and understood outside that country.

5.2.3 Difficulties in comparing studies at the data-extraction stage

The synthesis of the nine studies included in the in-depth review suggests that any conclusions about the impact of integrated care and education settings must take account of the following caveats:

- the research framework that informs the study
- the type of services that exist in a country, and access to those services
- the range of study designs, observations and tests that are country-specific

The effect of the research framework

Four of the studies (Andersson, 1989; Balleyguier 1988; Broberg *et al.*, 1997 and Hartmann, 1991) set out to answer questions about the impact of long hours of out-of-home care on children. All of these studies concluded that children benefited from such care. Entering care at an early age, and staying all day, led to better cognitive and socio-emotional outcomes than if children had stayed at home, or received some other form of care. There was no discernible difference between children from different social classes. However, in each case, although not specifically stated, the system or setting was part of a universal service in which especially trained staff offered an explicitly educational curriculum to the children (OECD, 2001). In addition, good parental leave arrangements meant that children did not usually enter the setting before the age of one year. Integrated care and education in these four studies produced positive outcomes for children.

Two of the studies (Campbell *et al.*, 2001 and Roberts *et al.*, 1989) dealt with the effects of intervention on multi-risk families. These studies, which were rigorously carried out, concluded that there were positive benefits for poor children from an explicit care and education regime, especially if the educational regime contains a highly-focused language intervention. However, the rationale for targeted intervention, as opposed to universal provision, is assumed and not made in these studies. Many countries, including ones included in the in-depth review, do not have targeted interventions but universal services. There has been a debate within the UK, in connection with the Sure Start programme, about the counter-productive effect of stigmatisation of targeted interventions (Glass, 1999).

Two of the other studies, Lee (1993) and Finn-Stevenson *et al.* (1998), could be described as being part of the education framework, as they focused on the effects of particular curricular experiences. However, the findings from these studies are too weak to draw any conclusions.

The final study, by Rosenthal (1991), compares experiences across settings, but pays particular attention to staffing issues. Some US findings also suggest that the training, pay and conditions of staff may be important in determining outcomes (Whitebook *et al.*, 1989). Staffing conditions are not important to outcomes of studies undertaken in continental countries, in so far as services are universal and the same conditions apply everywhere. However, in studies where the intervention is new or especially set up for the purposes of the study, they may warrant more careful reporting and investigation.

The nine studies, then, are addressing different research questions, although, as indicated in the synthesis, there is enough similarity of aims to draw some conclusions about the positive outcomes for children from attending integrated care and education.

Effect of type of setting

The studies were undertaken in very different types of settings. In the Scandinavian countries and in France, there are very well established systems of early education and care, with open access to all local children, highly trained staff and long established procedures. The settings were unproblematic and were largely taken for granted by the researchers. Replication of these studies, and application of the findings, would therefore be straightforward within those countries, although the conditions would not apply to populations outside those countries.

In each of the three American studies, and in the Korean study, the setting was especially established for the purposes of the study, and was not typical. The Finn-Stevenson study argued that any new and innovative provision needs time to become established, and the processes involved in becoming established themselves need to be studied. New provision cannot simply be set up overnight. Replications of the settings in these studies is problematic.

The Israeli study also investigated a form of provision, the kibbutz, unique to Israel, and the effects of setting could not be generalized outside Israel, although this study argued that the setting *per se* made little difference compared with factors such as staff competence.

The types of setting were so different that any comparisons across countries can only be very general indeed. It should be stressed that other European countries covered in our review, at the mapping and at the in-depth stage, already have in effect, integrated early education and care systems, and these problems of cost, access and organisation have long been resolved.

The range of study designs, observations and tests

Each study used a different spectrum of study designs, observations and tests, which, taken in conjunction with the research framework (what was being investigated) and with the differences in the settings (particularly the socio-economic circumstances of the children attending) may lead to different and non-comparable findings. The Campbell *et al.* (2001) and the Roberts *et al.* (1989) studies were randomised controlled trials (RCTs) which, whilst leading to more robust results, were predicated on there being a particular and unique intervention. Where there is a universal and standardised service available to all children, as in Scandinavia and France, day care cannot be evaluated using the RCT approach, and study designs are necessarily different.

The Campbell *et al.* (2001) and Roberts *et al.* (1989) studies used a variety of commercial resource packages to implement the curriculum within the setting, (e.g. Peabody Early Experiences kit; 'My Friends and Me' social curriculum package) which were linked to specific ability tests (e.g. Peabody individual achievement test).

The Hartmann (1991) study used an exclusively Norwegian test 'The Running Horses Game' in which the behaviours of mothers and children playing the game were tape-recorded and then analysed. It was claimed that this test enabled a wide range of maternal and child behaviour to be distinguished. The Balleyguier (1996) study used an author-designed self-report questionnaire 'Journal de Bébé'. The Lee (1993) study used a Korean version of the Developmental Profile and a questionnaire to mothers.

Teacher (and parent) assessments of children's social competence are likely to rely on local norms. These are likely to be different for children from African-Caribbean families from multi-risk families, children in Swedish schools or children in écoles maternelles. It is not known whether these assessments are comparable across countries.

The studies considered for in-depth review used different kinds of measures of impact and there must be concerns about their comparability across countries.

5.3 Implications

5.3.1 Policy

The weightings from Table 4.2 are taken into account in this discussion and evidence from the least sound studies has been mainly disregarded. All the studies broadly found that the impact of integrated care and education was beneficial for children and led to improved cognitive and socio-emotional outcomes. Children from multi-risk families showed significant gains. One well-designed study suggested that the impact of integrated care and education was amplified by home visiting family support, but conversely that home-visiting family support made no difference unless integrated care and education was also provided. Another study suggested that care-giver/teacher characteristics were likely to be a critical factor.

Unfortunately, the two studies which investigated the outcomes for mothers (parents) in terms of reduced stress, and better relationships with children as a result, were too weak to be reliable. The four studies which compared outcomes with age of entry to the setting, all suggested that earlier entry to day care was more likely to benefit than harm children – but these studies were undertaken in countries with good, well-established public provision.

However, given the wide variety of settings across countries, and the differing research frameworks to which they give rise, it is not possible to make unequivocal policy recommendations about integration of care and education. There are prior value judgements to be made about the type of services offered to young children, and access to them; different kinds of services give rise to different kinds of policy issues and research concerns, as the OECD has noted (OECD, 2001). In the UK, the nursery education and childcare systems are based on different assumptions about entitlement, costs and quality, and whilst integration of early education and care *may* have a positive impact on children and their parents, the evidence does not address these wider questions of costs, access and organisation.

5.3.2 Practice

All the studies reported in the in-depth review considered that an educational environment was important for young children, although the precise nature of that environment varied considerably between countries.

The Finn-Stevenson study, although unreliable in its findings, did raise important questions about implementation. It argued that new and innovative integrated provision takes time to develop, and that the processes involved are likely to be important and warrant consideration. This point may be relevant in the UK, in relation to the new Children's Centres being set up, as a result of the recent Interdepartmental Childcare Review (Cabinet Office, 2002).

5.3.3 Research

The Review Group noted the insularity of most research in this field. Researchers commonly assumed that the particular system of early education and care in their country was widely understood and did not need elaboration to a wider audience.

Research in this field also tended to be badly reported, and lacked details of sampling, test measures, data-collection and analysis.

Given the current policy emphasis on mothers, especially single mothers, returning to the labour market, the interplay of the type of provision and maternal stress and wellbeing may be an important research issue.

Further studies of the education offered within integrated education and care provision may be useful. 'Education' appears to be important and its relation to care could be further investigated – for example, pedagogical styles, training, curriculum, etc.

The three Scandinavian studies suggested that there were no differences in impact on children according to social class. The French study, however, suggested that social class is likely to make a difference in when and how parents access provision. Two of the US studies assume that intervention should be targeted exclusively at multi-risk children. The relationship of social class and setting could be further explored.

One of the studies (Balleyguier, 1988) made a reference to the effect of multiple care settings on children. It suggested that children who experienced multiple care arrangements before starting école maternelle at three years might do less well subsequently. The subset of data was not developed in the study, but it is a point of research interest, at least in the UK, where the nature of provision means that many children are likely to experience multiple arrangements before starting primary school.

Finally, studies of process in setting up integrated provision may be useful, if, as one study surmises, this process is likely to be fraught.

5.3.4 Conclusion

This review has highlighted the need for UK research that directly addresses integration issues, given that it is a policy priority. Our in-depth studies indicated that integrated settings benefited children, although this finding is qualified by reference to the country in which the research took place, and in particular by questions of access. Results for countries with universal provision (e.g. Nordic countries) cannot be directly compared with results from highly targeted provision for children from multi-problem families (as in the US). What we cannot say from this review is that children who attend integrated care and education provision benefit more than those who do not (i.e. who receive wrap-around care), although a very recent study, published after our review had been undertaken, suggests that there is a negative impact for mothers in coping when integrated care and education are not provided (Skinner, 2003). Our review, then, highlights the extent to which this issue is under-researched and the need for policy to be more securely grounded in the evidence.

The review methodology also raises the question about standards of research and research publications in the field. If evidence is to be closely scrutinised, it must be well reported. Details of sampling, test measures, data-collection and analysis need to be clearly set out, for inadequacy in any of these areas might affect outcomes. Much of the research we reviewed, however promising in scope, was very weak in this respect.

This review, its level of scrutiny and use of evidence, has been a wake-up call. We have been forced into thinking more carefully about the nature of research in early years and the uses it has been put to in justifying policy-making. Even if our own results were not as conclusive as we had hoped, clarifying the issues and highlighting the gaps has been an essential step.

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Toroyan T, Roberts I, Oakley A, Laign G, Mugford M (2003) Effectiveness of out-of-home day care for disadvantaged families: randomised controlled trial. *British Medical Journal* **327**: 906-910.

Whitebook M, Howes C, Phillips D (1989) *Who Cares? Childcare Teachers and the Quality of Care in America. Final Report of the National Child Care Staffing Study*. Oakland, CA, USA: Child Care Employee Project.

APPENDIX 2.1: Inclusion and exclusion criteria

Studies at the mapping stage were included if they met ALL the following criteria:

- (i) The study focus is on one or more examples of the provision of integrated care and education where integrated care and education is defined as:
 - Institutional;
 - open for at least six hours a day, five days a week;
 - with a formally agreed curricular framework and delivery of activities.

and the study is not of

- specific teaching methods devoid of their context within integrated care and education
 - the progress of children with disabilities unless the provision also offers integrated care and education
 - primary school-based provision unless it is also stated that it offers extra care outside normal school hours.
- (ii) The provision under study is aimed at children aged six years old or younger.
The provision might *also* be for older children, for example up to age eight (current UK childcare legislation refers to children 0-8) but needs, at least in part, to be aimed at the birth to six age range. Where the age range provided for is wider than birth to six, 50 percent of the population being provided for should be younger than six. We will also include longitudinal studies, where the age of the children during all or part of the intervention meet the above criterion.
 - (iii) The study is evaluative
That is, it:
 - evaluates the impact of provision on children's and/ or parental outcomes; and/or
 - is a review of such studies.
 - (iv) The study is published in one of the following languages: Bengali, Dutch, English, French, German or Spanish.
 - (v) The study is reported after 1974.
 - (vi) The study is reported in a format other than a thesis.

For the in-depth stage

- (vii) The study evaluates effects on outcomes.
- (viii) It is a primary study and not a review.
- (ix) It is about children's or parents outcomes.
- (x) It meets reporting quality 1: Are the research questions stated?

(consider whether the author(s) provide a succinct statement describing what the study is trying to find out/ explore/ describe/ discover/ illuminate etc. Research questions should be stated in the abstract, in the introduction/background section or in a separate section entitled, for example, 'aims/objective')

- (xi) It meets reporting quality 2: Is at least some information, in *each one* of the following areas, reported about the methods used in the study?
 - (a) the tools and/or people used to collect data?
 - (b) how the tools measured/captured the phenomenon under study?; and
 - (c) sampling and recruitment methods?

- (xii) It meets reporting quality 3: Is at least some information given on the sample used in the study (i.e. the units from which the data were collected) for at least two of the following characteristics?
 - age
 - gender
 - socio-economic status
 - ethnicity
 - health status
 - children attend for how many hours/ full time or part time?
 - other relevant characteristic

- (xiii) Provision starts before the age of 5.

APPENDIX 2.2: Search strategy for electronic databases

Table 2.2.1: Databases searched

<i>Bibliographic databases</i>	<i>Library catalogues</i>	<i>Webpages and other web-based research databases</i>
Australian Education Index	Barnardo's library	Current Educational Research in the UK
ASSIA	National Autistic Society	Regard
IBSS	National Children's Bureau	Educational Research in Scotland
Sociological Abstracts		Social Science Information Gateway
Social Services Abstracts		Cochrane Library
British Education Index		Childcare Information Reference Collection, Childcare Resource and Research Unit, University of Toronto
ERIC		B van Leer Foundation effectiveness initiative & publications list
Childdata		Scottish Council for Research in Education
Psycinfo		Joseph Rowntree Foundation
Caredata		World Bank
		Unesco
		Unicef

The search strategy

1 (daycare or day care or childcare or child care or (after school or after-school or out of school or out-of-school or breakfast or lunch or kid\$ or drop in or drop-in) adj (care or group\$ or club\$ or centre\$ or center\$) or school age care or school-age care or SAC or family cent\$ or integrated cent\$ or sessional or latchkey or extended hours)

2 (education\$ or child development or school\$ or pedagog\$ or kindergarten\$ or High Scope or High?Scope or foundation level or elementary or primary or curricul\$)

3 (infant\$ or toddler\$ or baby or babies or (preschool\$ or pre-school\$ or young or elementary or kindergarten) adj6 (child\$ or boy\$ or girl\$ or pupil\$) or 'grade 1' or 'grade one' or early adj (year\$ or childhood))

4 (infant care or prekindergarten or pre-kindergarten or NNI or early childhood program\$ or playgroup\$ or playschool\$ or play school\$ or pre-schools or

preschools or creche or crèche or (pre-school\$ or preschool\$) adj (unit\$ or provision or setting\$ or 'mother and toddler group' or 'parent and toddler group')

5 (headstart or head start or Montessori or sure start or early excellence centre or Reggio Emilia) or (School\$ adj2 21st century) or (school\$ adj2 twenty?first century) or (cities adj1 schools) or educare)

6 (nursery\$ not ((nursery adj class\$) or (nursery adj school\$)))

7 1 AND 2 AND 3

8 4 AND 2

9 5 AND 3

10 6 AND 2

11 7 OR 8 OR 9 OR 10

Note: \$ is a truncation symbol, and ? is a wildcard.

In order to reduce the number of false drops, approximately one quarter of the records retrieved from Eric, Applied Social Sciences Index and Abstracts Social Services Abstracts and Sociological Abstracts were scanned and inappropriate subject headings identified. These were then excluded from the searches in these databases.

The subject headings excluded were as follows.

Table 2.2.2: Applied Social Sciences Index and Abstracts

Accident and emergency departments	Alcohol
Alexithymia	Allergies
Breastfeeding	Fasting
Midwives	Newborn babies
Parental divorce	Policy making
Postpartum women	Special schools
Substance abuse	Therapeutic communities

Table 2.2.3: Social Services Abstracts

Alcohol	Drug abuse
Policy reform	Prisons
Residential institutions	State role
Substance abuse	

Table 2.2.4: Sociological Abstracts

Educational policy	Family planning
First birth timing	Naming practices
Sociology of religion	Welfare reform
Drug addiction	

Table 2.2.5: ERIC

Accreditation	Administrator guides
Adult daycare	Agricultural education
Bibliographies	Breastfeeding
Career choice	Career education
Career exploration	Career ladders
Course control	Curriculum guides
Demography	Diseases
Educational legislation	Educational resources
Federal legislation	Foods instruction
Government role	Guidelines
Guides	Hearings
Horticulture	Hospitalised children
Instructional materials	International educational exchange
Learning modules	Lesson plans
Lobbying	Nursing education
Obstetrics	Pharmacology
Policy formation	Position papers
Practical nursing	Programme guides
Public policy	Reference materials
Reference materials	Resource materials
Speeches	State legislation
Study guides	Teaching guides
Units of study	Vocational education

APPENDIX 2.3: Journals handsearched

Early Child Development and Care 1975-2001

Early Childhood Research Quarterly 1986-2001

Future of Children (online journal) 1991-2001

APPENDIX 2.4: EPPI-Centre keywording sheet including review-specific keywords

V0.9.5 Bibliographic details and/or unique identifier.....

<p>1. Identification of report Citation Contact Handsearch Unknown Electronic database (Please specify.)</p> <p>2. Status Published In press Unpublished</p> <p>3. Linked reports <i>Is this report linked to one or more other reports in such a way that they also report the same study?</i></p> <p>Not linked Linked (Please provide bibliographical details and/or unique identifier.)</p> <p>4. Language (Please specify.)</p> <p>5. In which country/countries was the study carried out? (Please specify.)</p>	<p>6. What is/are the topic focus/foci of the study? Assessment Classroom management Curriculum* Equal opportunities Methodology Organisation and management Policy Teacher careers Teaching and learning Other (Please specify.).....</p> <p>*6a Curriculum Art Business studies Citizenship Cross-curricular Design and technology Environment General Geography Hidden History ICT Literacy – first language Literacy further languages Literature Maths Music PSE Physical education Religious education Science Vocational Other (Please specify.)</p> <p>7. Programme name (Please specify.)</p>	<p>8. What is/are the population focus/foci of the study? Learners* Senior management Teaching staff Non-teaching staff Other education practitioners Government Local education authority officers Parents Governors Other (Please specify.)</p> <p>*8a Age of learners (years) 0-4 5-10 11-16 17-20 21 and over *8b. Sex of learners Female only Male only Mixed sex</p> <p>9. What is/are the educational setting(s) of the study? Community centre Correctional institution Government department Higher education institution Home Independent school Local education authority Nursery school Post-compulsory education institution Primary school Pupil referral unit Residential school Secondary school Special needs school Workplace Other educational setting (Please specify.).....</p>	<p>10. Which type(s) of study does this report describe?</p> <p>A. Description B. Exploration of relationships C. Evaluation a. naturally-occurring b. researcher-manipulated D. Development of methodology E. Review a. Systematic review b. Other review</p> <p><i>Please state here if keywords have not been applied from any particular category (1-10) and the reason why (e.g. no information provided in the text)</i></p> <p>.....</p> <p>Review-specific keywords (if applicable)</p>
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Expansion of keywords for Early Years Review Group

Bibliographic details and/or unique identifier

11. Expansion of 8a (age of learners) (Tick *all* that apply.)

- (NB: please fill in 8A as well)
 Birth-1 (i.e. 1 year 11 months)
 2-3
 4-6
 7+

12. Expansion of 9 (Educational setting of the study)

(For all studies, select 'Nursery School' in section 9.)

- Asilo Nido
 Community nursery
 Crèche parentale
 Early Excellence Centre
 Early years centre
 Ecole maternelle
 Educacion infantil
 Escuela infantil
 Family centres
 Head Start
 Integrated development centre (India)
 Kindergarten (in continental Europe)
 Montessori
 Neighbourhood nursery
 Nursery centre
 Reggio Emilia
 Schools of the 21st Century
 Sure Start
 Childcare centre

13. Attributes of integration covered

(Mark the attributes; do not give details.)

- Access
 Costs
 Curriculum
 Health
 Parenting and community
 Pedagogy/care
 Staffing

14. Is the study about processes or outcomes?

- Processes
 Outcomes

15. If outcomes, does the study provide data on outcomes for

- Children?
 Parents?
 Community?
 Service providers?

16. Do most children attend full-time?

- Yes
 No
 Unknown

17. Is the provision targeted at a disadvantaged population?

- Yes
 No
 If yes, please describe

APPENDIX 2.5: Early years care and education arrangements in countries featured in mapped studies

Country	<i>State-funded and state-regulated: national curriculum; can predict hours and curriculum from name of setting</i>	<i>State-regulated, with national curriculum, but mixture of public and private provision; can predict curriculum but not hours from name of setting; hours must be stated.</i>	<i>No state regulation, no set curriculum (or unknown); cannot predict hours or curriculum from name of setting; both must be stated.</i>
Australia			X
Austria	X		
Canada			X
China	X		
Denmark	X		
England			X
Finland	X		
France	X		
Germany	X		
Greece			X
Hungary	X		
Israel			X
Italy	X (but regional)		
Japan			X
Korea			X
Netherlands			X
New Zealand		X	
Norway	X		
Poland	X		
Portugal			X
Russia	X		
Scotland			X
Singapore			X
Spain	X		
Switzerland	X		
Sweden	X		
Trinidad			X
USA			X

APPENDIX 4.1: Reports included in the in-depth review

Papers indicated in bold are those that have been used to represent the study in the text of this review report. All reports are detailed in full in the references.

1. Abecedarian Project

Campbell *et al.* (2001)
Burchinal *et al.* (1997)
Burchinal *et al.* (1989)
Campbell and Ramey (1989)
Campbell and Ramey (1994)
Campbell and Ramey (1995)
Campbell *et al.* (1998)
Campbell *et al.* (2002)
Clarke and Campbell (1998)
Feagans and Farran (1994)
Feagans *et al.* (1995)
Martin *et al.* (1990)
Ramey and Campbell (1979)
Ramey and Campbell (1984)
Ramey and Campbell (1991)
Ramey and Farran (1983)
Ramey and Haskins (1979)
Ramey *et al.* (1998)
Ramey *et al.* (1984)
Ramey *et al.* (1979)
Ramey *et al.* (1982)
Ramey *et al.* (2000)

2. Andersson study

Andersson (1989)
Andersson (1992)

3. Balleyguier study

Balleyguier (1988)

4. Broberg study

Broberg *et al.* (1997)
Broberg *et al.* (1990)
Broberg *et al.* (1990)

5. Finn-Stevenson study

Finn-Stevenson *et al.* (1998)

6. Hartmann study

Hartmann (1991)

7. Lee study

Lee (1993)

8. Project Care

Roberts *et al.* (1989)

Bryant *et al.* (1987)

Ramey *et al.* (1985)

Wasik *et al.* (1990)

9. Rosenthal study

Rosenthal (1988)

Rosenthal (1991)