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**Thematic Probe**  
**Early Years International Themes**

**Final Report**

**David Pepper**

**Tom May**

**NFER**

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## ***Background and methodology***

In January 2009, the then Qualifications and Curriculum Authority (QCA), now the Qualifications and Curriculum Development Agency (QCDA), commissioned NFER to undertake, as part of the INCA project ([www.inca.org.uk](http://www.inca.org.uk)), a rapid review of international research literature published since 2000 in response to the following research question:

What are the major themes in early years education apparent in national and international research literature, for example:

- the impact of different types of early years provision on later outcomes
- the teaching and learning of literacy and numeracy
- child well-being
- thinking skills, problem solving and applying learning?

In response to this question, NFER supplied a wide range of abstracts to QCA. On the basis of these abstracts, QCA's International Unit requested 29 full articles considered to be highly relevant to the research question, with priority given to international comparative studies.

In July 2009, it was agreed that the wealth of information on Early Childhood Education and Care (ECEC) across these 29 articles should be fully analysed in order to inform QCDA's work in relation to the Early Years Foundation Stage in England.

An initial report containing the results of a preliminary analysis of 18 of the articles, which were available electronically and loaded into qualitative coding software (NVivo), was completed in August 2009. Feedback on this preliminary analysis was sought before the remainder of the articles were analysed.

On further scrutiny, two of the remaining articles from the 29 were discarded. As a result, this final report is based on evidence drawn from 27 scholarly articles relating to a diverse range of countries and issues. To make full use of the evidence across the articles and countries, the final report's findings are organised according to six themes identified across the literature:

- Pre-school effects
- Curriculum frameworks
- Cognitive and social development
- The quality of 'interactions'
- Practitioner training
- Family participation.

In this final report, the findings across these themes are developed into conclusions and a set of implications for QCDA, partner agencies and others to consider.

## Findings

### Pre-school effects

- In a study of 12 countries, Oberhuemer (2005) noted that, following numerous studies highlighting social and economic benefits, early childhood services are receiving heightened attention within the field of public policy. Many studies are concerned with maximising the benefits of early childhood education and care for all children, whilst others focus on early literacy development. There is also some evidence in relation to numeracy and wider development.
- There is consistent evidence of continuity in children's literacy in pre-school and school (Aram, 2005 in Israel; Li and Rao, 2005 in Beijing, Hong Kong and Singapore; Freeman and Robertson, 2001 in Australia). However, a number of longitudinal studies have found that for most children who initially struggle with literacy, the gaps between them and their peers increase exponentially during schooling (Comber and Nichols, 2004).
- A number of prior studies from other countries identify a correlation between vocabulary and phonological awareness in pre-school and the subsequent development of literacy in school (Aram, 2005). Yet, although children who have attended pre-schools enter school with higher levels of academic skills than children who have not attended pre-school, the latter can, to some extent, catch up with their peers if they are placed in small classes at school with high levels of reading instruction (Magnuson *et al*, 2007 in the USA).
- Magnuson *et al* (*Ibid.*) also cite a 2004 study concluding that systematic reading instruction in elementary school provided greater benefits for Finnish children with low rather than high literacy. Similarly, a 2005 evaluation of a curriculum change in England found that higher levels of teacher-managed instruction during the first and third year groups predicted larger gains for low-skilled rather than higher-skilled children (Machin and McNally (2005) in *Ibid.*).
- In a study of 16 Head Start<sup>i</sup> settings including 128 children in the USA, Yeh and Connell (2008) found that instruction emphasising phoneme segmentation, blending and letter-sound relationships was more likely to promote progress in reading than vocabulary instruction and, particularly, rhyming instruction. This was found to be particularly true for highly disadvantaged children, as young as four years old. This reportedly contradicts Head Start policy, which holds that instruction in rhyming and vocabulary are more developmentally appropriate.
- In a study of 10 countries<sup>ii</sup>, Montie *et al*, 2006 found that, when free choice activities had predominated in pre-school, children had significantly higher language development at age seven. They also found that less time spent in whole group pre-school activities was linked with higher cognitive development by age seven.

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<sup>i</sup> Head Start is a national programme that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families: <http://www.acf.hhs.gov/programs/ohs/>

<sup>ii</sup> Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand and the USA.

- In mathematics, children aged four in Hong Kong and Singapore, who begin formal mathematics education as young as three, generally outperformed their peers in Finland, who begin mathematics at the age of seven (Aunio *et al*, 2004). However, Finland's high performance in PISA<sup>iii</sup> mathematics at age 15 has been well publicised.
- In New South Wales (Australia), where children start school on a set date, an evaluation of the Reading Recovery programme found that teachers typically selected older 'less progressed' children for the programme. This was contrasted with New Zealand, where children start school on their fifth birthday (Freeman and Robertson, 2001), and which would remove such selection bias.
- Fletcher *et al* (2005) found that some children's literacy development can benefit from pre-primary grade repetition, which appears to have no significant impact on socio-emotional development up to the age of seven or eight. However, they note that prior studies of longer term impacts are contradictory, with evidence of better emotional health amongst both retained children and normally progressing children.
- In her study of modes of attendance, Boardman (2005) found that children in Tasmania (Australia) who had attended full-day kindergartens gained higher mean scores in Performance Indicators in Primary Schools (PIPS)<sup>iv</sup> tests than children who had attended half-day kindergartens. The differences were statistically significant in PIPS maths and reading tests. This may result from a more formal approach to learning in full-day kindergartens, or from more opportunities for a wider range of uninterrupted experiences relating to maths and reading.
- However, Boardman also notes that the academic differences may not be sustained in the long-term and that social differences were not assessed. In addition, the difference was not statistically different in the PIPS phonics test. The generalised focus on phonics and related targets in Tasmania in both full- and half-day kindergartens could explain this lack of difference.
- Bodovski and Farkas (2007) found that in the United States children in classes with a higher average mathematics performance when school begins are more likely to have attended full-day than half-day kindergartens. They also found that full-day kindergartens modestly countered the tendency to lower achievement gains of Black children.
- According to the OECD's 2006 review of early childhood education and care (ECEC) in 20 countries, evaluations of the effect of ECEC programmes, such as those in the US, UK and Sweden, are necessary for system accountability and improvement. The OECD review found that a focus on structures, processes and goals is more appropriate in ECEC than standardised tests or assessment scales, which are even forbidden by some authorities (Bennett, 2006).

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<sup>iii</sup> The Programme for International Student Assessment (PISA) is an internationally standardised assessment administered to 15-year-olds in schools:

[http://www.oecd.org/pages/0,3417,en\\_32252351\\_32235731\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/pages/0,3417,en_32252351_32235731_1_1_1_1_1,00.html)

<sup>iv</sup> PIPS: <http://www.education.uwa.edu.au/pips/future/who> and <http://www.education.tas.gov.au/curriculum/assessment/pips>

## Curriculum frameworks

- In a review of ECEC in 12 countries in 2001, the OECD found that key elements of successful services were a clear policy vision and coordinated frameworks for children from birth to eight and a lifelong learning approach from birth onwards, encouraging smooth transitions for children (Bennett, 2004). However, until the mid-1990s, few national curricula for pre-school existed (Samuelsson *et al*, 2006).
- Since the mid-1990s, several governments have introduced a pre-school curriculum or learning framework (Oberhuemer, 2005) including New Zealand (1996), Norway (1996), Finland (1996), Australian states (1997), Sweden (1998), Scotland (1999), Chile (1999) and England (2000). The OECD went on to find that many of the 20 countries in its 2006 review of ECEC had established national pre-school curricula and some had also developed a pedagogical framework (England was identified as one such country; Bennett, 2006).
- Oberhuemer (2005) identifies six main reasons for the introduction of curricula or otherwise defined frameworks:
  1. Early years is increasingly seen as a foundation for learning in a knowledge society.
  2. The findings of recent neuroscience research on early cognitive development.
  3. Curriculum frameworks are seen as a public accountability measure in education.
  4. Curriculum guidelines can establish a shared framework of guiding principles.
  5. Mandatory guidelines are sometimes seen as a quality and equity measure.
  6. Curriculum guidelines can establish a common language for communication.
- Although the impetus may be similar, Samuelsson *et al* (2006) note that early childhood curricula vary in scope, objectives, evaluation, methods and perspectives on learning and quality. They compared five early childhood curricula: Reggio Emilia<sup>v</sup> (RE, Italy), Te Whariki<sup>vi</sup> (TW, New Zealand), Experiential Education<sup>vii</sup> (EE, Belgium), High/Scope<sup>viii</sup> (H/S, USA) and the Swedish National Curriculum for Pre-school<sup>ix</sup> (LPFO, Sweden). There are a number of similarities:
  - They see the child as 'an active child who initiates communication and who is interested in the surrounding world' (p. 16).
  - They visualise the child's rights, but children's needs form the basis of rights in EE and H/S and children's rights are stated in RE, TW and LPFO.
  - Interaction and communication play a central role in learning and wellbeing, particularly in TW.

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<sup>v</sup> Reggio Emilia: [http://en.wikipedia.org/wiki/Reggio\\_Emilia\\_approach](http://en.wikipedia.org/wiki/Reggio_Emilia_approach) and <http://www.reggioemiliaapproach.net/>

<sup>vi</sup> Te Whariki: <http://www.educate.ece.govt.nz/learning/curriculumAndLearning/TeWhariki.aspx>

<sup>vii</sup> Experiential Education: [http://en.wikipedia.org/wiki/Experiential\\_education](http://en.wikipedia.org/wiki/Experiential_education)

<sup>viii</sup> High/Scope: <http://en.wikipedia.org/wiki/High/Scope>

<sup>ix</sup> National Curriculum for pre-school in Sweden: <http://www.inca.org.uk/665.html>

- They emphasise the importance of parental involvement, which is most evident in TW, RE and LFPO.
- Staff should be encouraged to develop their understanding of child development and of each child through reflective practice. To this end, documentation (RE, LFPO), learning stories (TW), observations (EE, LFPO) and supervision (H/S) are emphasised.
- Each curriculum has a value orientation and a conception of teachers' professionalism.

There are also some notable differences:

- The view of the child in teaching and learning and, accordingly, pedagogical approaches- although there is a consistent emphasis on seizing opportunities in children's experiences and interests.
  - The learning environment, with the most emphasis on its impact on learning in H/S and EE.
  - Assessment and evaluation, with H/S the only curriculum in which outcomes are seen from a long-term perspective and RE taking a stand against evaluation but emphasising documentation.
- A significant difference was also identified in the OECD's 2006 review of ECEC in 20 countries. Within these countries' frameworks, readiness for school and socio-emotional, physical development were both seen as important, but there was a lack of consensus concerning the skills, knowledge and pedagogies young children need (Bennett, 2006).
  - More specifically, in terms of the design of the framework itself, Oberhuemer (2005) contrasts Sweden's LFPO with England's Early Years Foundation Stage (EYFS). Whilst LFPO is formulated according to goals, it does not specify strategies for translating these into practice. This is contrasted with the goal-related examples of what children can do and what the practitioner needs to do in England. The study goes on to identify that some countries assume a professional workforce and leave them to translate goals into practice. In others, it is assumed they need more guidance on achieving goals.
  - The OECD's Early Childhood Policy Reviews seem to favour the former approach, emphasising the importance of developing frameworks based on 'broad guidelines and curricular orientations' (p. 146) with stakeholders. Once these frameworks have been agreed (and sufficient funding provided), well-trained practitioners (and other service providers) should have the autonomy to 'plan, choose or create curricula that they find appropriate for the children in their care'. Furthermore, individual children should not be required to reach a given standard by a certain age (Bennett, 2006).

## Cognitive and social development

- Kutnick *et al* (2007) contrast the North American literature, with its tendency to identify practitioners as mostly engaging in 'cognitive activities' rather than a 'relational-supportive role' (p. 382), with the focus of northern European descriptions on wellbeing rather than a 'pre-school curricular orientation' (p. 383). New (2004) in Oberhuemer (2005) similarly identifies an emphasis on school readiness in the USA and contrasts this with the community-orientated learning of the Reggio Emilia approach.
- In Hong Kong, there has been strong pressure from parents for early literacy instruction in pre-schools. The result has been whole-group teaching with intensive drilling and rote learning. In preparation for school, both Cantonese and English are commonly taught but this seems only to have results in poor standards in both languages. There were points of comparison between this approach and that of Singapore (Li and Rao, 2005).
- Indeed, Singapore government has provided guidelines for the pre-school English (but not Chinese) curriculum. The focus is on language, literacy, numeracy, art, music and computing. While practitioners in Singapore believe this already prioritises pre-academic skills, parents and teachers would like even more academic focus (Li and Rao, 2005).
- The issues in Hong Kong led the government to issue a list of 'Dos and Don'ts' for kindergartens in 1999. The 'Dos' included promoting all-round development, organising child-centred activities, instructing in the mother tongue, and respecting differences. The 'Don'ts' included: don't ask children aged three to four to write, don't ask children to do 'mechanical' copying, and don't adopt a lecturing style of teaching (p. 238. Li and Rao, 2005).
- Hong Kong's change of policy was a move towards policy in the remainder of China, where pre-academic approaches are not favoured. China has trialled a number of different approaches to pre-school, including programmes based on Montessori<sup>x</sup>, High/Scope and Reggio Emilia (Li and Rao, 2005).
- Aasen and Waters (2006) reported that, in Wales, the Foundation Phase 'places personal and social development and wellbeing at the centre' but that it does not define 'wellbeing' (p. 124). Similarly, in a comparative study of Finland and Estonia, Taimalu *et al* (2004) identify children's sense of security as being one indicator of wellbeing and, indeed, the quality of the learning environment. In their comparative study, Samuelsson *et al* (2006) indicate that wellbeing is an important focus across all five of the pre-school curricula that they considered.
- In preparing children for school life, the OECD review of 20 countries implies that a successful strategy for ECEC means a balance of the contrasting approaches outlined above. Consequently, it recommends the development of appropriate social and cognitive programmes, including literacy and numeracy, which bridge the transition from pre-school to school (Bennett, 2006).

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<sup>x</sup> Montessori: [http://en.wikipedia.org/wiki/Montessori\\_method](http://en.wikipedia.org/wiki/Montessori_method)

## The quality of 'interaction'

- With reference to the findings from EPPE (the Effective Provision of Pre-School Education project)<sup>xi</sup>, Aasen and Waters (2006) argue that the quality of children's interactions with adults and peers in formal and informal settings is central to their wellbeing. Indeed, social constructivist theory argues that the most effective learning occurs when teaching is 'improvisational' and children are allowed to 'interact and collaborate' (p. 329. Montie *et al*, 2006).
- The OECD's 2006 review of ECEC in 20 countries emphasised the importance of wellbeing, natural learning strategies and interaction. The focus on the agency of the child in Norway and Sweden and listening, project work and documentation in Italy in Reggio Emilia are given as examples (Bennett, 2006). In Norway (Aasen and Waters, 2006), the 'Framework plan for day care institutions' links social interaction with both care and play to promote learning. Within the framework care and education are seen as a whole; the authors state that, '[p]lay is central to the child's wellbeing' (P125).<sup>xii</sup>
- However, in a study of six countries<sup>xiii</sup>, Kutnick *et al*, 2007 found that, although the majority of children's activities within their early education setting were undertaken with peers, there was relatively little practitioner planning for this. With clear implications for the nature and amount of interaction, at the extremes of their observations across the six countries they found:
  - A reception class in England with 24 children, one teacher and a teaching assistant in one room focussing on literacy and numeracy.
  - A nursery in Sweden with 15 children and multiple practitioners with access to multiple rooms focussing on social activities.
- In terms of measures of interaction, Montie *et al*'s (2006) study of cognitive and language performance makes reference to the Early Childhood Environment Rating Scale (ECERS, see Harms, Clifford, & Cryer, 1998) and the Caregiver Interaction Scale (see Arnett, 1989). An adaption of ECERS is the Infant/Toddler Environment Rating Scale (ITERS), which specifically includes interaction. This has been widely used in the USA and Tietze and Cryer use it in their (2004) comparison of infant and toddler programmes in Germany and the USA.
- ITERS consists of 35 items organised under seven categories: Furnishings and Display for Children, Personal Care Routines, Listening and Talking, Learning Activities, Interaction, Programme Structure, and Adult Needs. The categories therefore appear to be a combination of process and outcome measures. Within the categories, each item is rated on a seven-point scale. The inadequate (1) to minimal (3) ratings usually focus on provision of basic materials and on health and safety precautions. The good (5) to excellent (7) ratings require positive interaction, planning, and personalized care, as well as appropriate materials (Tietze and Cryer, 2004).

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<sup>xi</sup> <http://eppe.ioe.ac.uk/>

<sup>xii</sup> [Norway's Framework plan for day care institutions](#)

<sup>xiii</sup> England, Finland, Greece, Italy, Spain and Sweden

## Practitioner training

- There is general agreement in the literature that teacher quality, including general academic ability and knowledge of the subject taught, is a major factor in early learning. However, use of what may be perceived as simple indicators such as a masters qualification, for example, has been controversial (Magnuson *et al*, 2007). Specific learning outcomes may provide a better indication of teacher quality than a qualification or its status *per se*.
- The OECD's 2001 review of policies and services in 12 countries found that appropriate training and working conditions for staff were a key element of successful ECEC. The OECD therefore suggested broadening initial and in-service training to reflect practitioners' growing educational and social responsibilities (Bennett, 2004).
- A study of kindergarten teachers' teaching of mathematics to children with low and moderate socio-economic status (SES) suggested that teachers with extensive education may have a preference towards a child-centred view of valuing children's interests over teacher's goals (Lee and Ginsburg, 2007).
- Across six European countries, practitioners had received little formal training on the grouping of children. They tended to see social exclusion by peers as a problem relating to individual children rather than a group problem for which all members carry responsibility (Kutnick *et al*, 2007).
- In a study of 30 to 36-month-olds, McMullen and Darling (2003) found that, whilst younger children tended to approach problem-solving through trial and error (typically thinking and doing simultaneously), older children consistently used symbolic strategies (thinking first, then doing). This confirms the findings of previous studies. The authors concluded that adults can facilitate problem-solving strategies by encouraging children to think through such strategies, discuss them with their peers, and reflect on them afterwards.
- Several studies indicate that, when information technology is aligned with young children's development, it can facilitate both cognitive development in early childhood by providing scaffolding for movement to symbolic thinking and social development through peer activities. However, this is dependent on teachers' abilities to align usage to the developmental characteristics of young children and to the goals of early education (Chen and Chang, 2006).

## Family participation

- The OECD's 2001 review of policies and services in 12 countries identified 'defining, ensuring and monitoring quality' through a 'participatory and democratic process that engages staff, parents, and children' (p. 142. Bennett, 2006) as a key element of successful ECEC. The OECD's 2006 review of 20 countries further emphasised participation and democracy in ECEC and the importance of family and community involvement in early childhood services (Bennett, 2006).
- Comber and Nichols (2004) found that when 'teachers actively design curriculum and pedagogies that are permeable and allow children to make use of knowledge and practices acquired in home and community sites, children's literacy development is enhanced' (p. 60). However, there is substantial cross-national variation in the effect of home environments on children's literacy (Aram, 2005). Of course, other factors such as pre-school provision itself are likely to have a significant effect. So, both family- and school-related factors influence early literacy attainment. Family influences include: maternal education, home environment and SES (Li and Rao, 2005).
- The number of books in the home has traditionally been used as a proxy for SES (when information about parental education and occupation is absent) and is a strong predictor of children's development. This seems valid, given that access to resources relating to literacy materials is linked to the development of literacy, and children with higher SES tend to have better access to these resources than children with lower SES (Aram, 2005).
- In the view of practitioners in Australia, the attitude of the family was the most important factor in integrating a child into pre-school. In the view of parents conversely, the attitude of the practitioners was the most important factor (Kemp, 2003). Practitioners in Hong Kong felt that parents should be partners in learning, specifically in the development of thinking skills. Again, this often contrasted with the view of parents, who were more likely to feel that they were passing responsibility to the practitioner (Lam *et al*, 2003). However, the evidence points to the benefits of a collaborative approach drawing on resources inside and outside of pre-school settings.

## **Conclusions**

This report is based on an analysis of 27 scholarly articles which identified six major themes across this literature. These themes relate to pre-school effects, the quality of interactions, curriculum frameworks, cognitive and social development, practitioner training, and family participation.

Both the articles selected for the analysis and the themes identified within the articles are intended to be relevant to the remit of QCDA and the wider context within which it operates. This is a limitation of the report but it should also be a strength in informing policy and practice.

The broad scope of the literature review resulted in a diverse range of findings detailed within each of the themed sections of the report, but these are concisely summarised in the remainder of this section:

- There is strong evidence to suggest that pre-school education has a significant bearing on subsequent life chances. It is therefore important that children receive a pre-school education that is high quality.
- However, some remedial strategies in pre-school and early in school can compensate, at least to some extent, for the prior absence of important factors relating to the development of young children.
- Perceptions of quality vary between national contexts, but evidence of the social and economic benefits has been a major factor in the recent introduction of regulatory frameworks including pre-school education, which vary according to these perceptions.
- There is a contrast between countries that emphasise early cognitive development and those emphasising early social development as a basis for subsequent cognitive development.
- The call for balance between these two approaches is reasoned and children's different patterns of progress imply that well-trained practitioners need sufficient scope within frameworks to plan experiences that strike the appropriate balance for each individual child.
- Similarly, the importance - for the development of the child - of social interaction between the child, their peers and adults and the emphasis on seizing opportunities and responding to the child's interests also implies a significant degree of flexibility within frameworks for practice.
- Yet the literature suggests that there is not always sufficient training or, consequently, planning for this interaction, particularly in relation to the interaction between children and their peers. Other literature emphasises the importance of training in general, or that of specific training relating to, for example, problem solving or the developmentally appropriate use of ICT.
- There are a number of senses in which family involvement in pre-school settings can have a major bearing on early childhood development. Firstly, through participation in discussions about overall provision; secondly, through engaging with their child's learning

and working in partnership with practitioners; and thirdly, through resources and supporting practices in the home learning environment.

## ***Policy implications***

Although this report is based on peer-reviewed literature, it has not sought to critically evaluate the methodology employed in each research study. Caution should therefore be exercised when interpreting the evidence from individual sources in this report. However, there are a number of implications for policy and practice in England for QCDA and others to consider:

- The evidence from other countries favours the continued implementation of an early childhood learning framework, such as EYFS, in England.
- It also raises a question as to whether there is coherence across learning and curriculum frameworks, particularly from birth to age eight.
- The need for specification of learning inputs (processes), in addition to learning outcomes (goals), to be reviewed in the context of an increasingly professional workforce.
- Careful consideration is given to the balance between social and cognitive development in EYFS, and the degree of flexibility to achieve the appropriate balance for each child.
- Similarly, the extent to which there is sufficient flexibility to respond to learning opportunities as they emerge, and for a variety of social interactions, should also be considered.
- Given the importance of interaction in early learning, consideration should be given to whether there is sufficient training in this specific aspect of planning and facilitating learning.
- The documentation of interactions should also be considered as part of wider assessment and evaluation. Further information on the instruments referenced in this report would support this.
- The potential for some specific strategies to support children's learning regardless of their rate of development should be explored in the policy context of early years settings and primary schools.
- Policies should continue to support an appropriate level of training for practitioners and the evaluation of early childhood provision in order to promote systemic improvement.
- Engaging practitioners *and* parents in the process of any changes to early childhood frameworks will be important for ongoing implementation in settings, and for mutually supportive relationships between practitioners, parents and other adults.

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