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| School Readiness |
| A critical review of perspectives and evidence |

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| A TACTYC Research Publication by Sue Bingham and David Whitebread |

**The Purpose of this Report**

There has been extensive discussion and reference in recent months to the notion of ‘school readiness’. This review was commissioned by TACTYC in order to examine the perspectives, views and underlying assumptions concerning early childhood education which underpin this notion and its various manifestations. The report is intended to review the emergence and underlying perspectives behind the ‘school readiness’ debate and to review research evidence which might inform it. In order to provide the best possible quality evidence , in the main, only studies reported in peer-reviewed journals, with appropriate sample sizes and published since 2000 have been included.

TACTYC 2012.

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Executive Summary

The well-aired arguments about whether, how and why a child should be ‘made ready’ for school in England are symptomatic of the far deeper tension growing within the early years education sector in relation to a widening conceptual divide. There is no agreement upon a definition of the term ‘school readiness’ or ‘readiness for school’ and its use because *there is no agreement upon what young children should be prepared for*; in essence, the disagreement about terminology and definition encapsulates *a fundamental difference in conception of the purpose of early years education*.

The English government in particular has become increasingly interventionist. In 2011 it brought out a set of documents prescribing a curriculum-centred approach for the Foundation Stage and has considered assessment testing of ‘school readiness’ in children. The government uses the term ‘readiness for school’ as a finite construct, implying there should be a *fixed standard* of physical, intellectual, and social development that prepares children to meet school requirements and assimilate curriculum, typically embracing specific cognitive and linguistic skills.

This is in line with its attempts to ‘raise standards.’ The government has encouraged the introduction of formal curricula at ever-earlier points in school – for example, it has imposed a systematic programme for phonics teaching in Reception classes and has emphasised delivery of aspects of the National Literacy and Numeracy Strategies. The model of ‘readiness for school’ is attractive to governments as it seemingly ‘delivers’ children into primary school ready conform to classroom procedures and even able to perform basic reading and writing skills. This takes little heed of individual differences or the fact that many children at aged four-years are simply not developmentally for this type of learning and may well be deemed ‘failures’ at a very early age.

Key Stage testing at the end of year 2 continues to pressurize teachers to push children towards achieving ever higher ‘levels’ and to start teaching to these tests at ever earlier points. Teachers are relying increasingly on formal, didactic methods of instruction to achieve these targets partly due to having large classes and inadequate adult-child ratios in Reception classes.

Numerous indicators highlight the substantial differences in early childhood experiences across children entering school in England. These differences affect children’s initial development and persist as they grow older, influencing dispositions towards learning as well as the range of skills they will be ready to employ upon arrival in school. Such factors include, for example, the nature of early relationships with parents and other caregivers, the extent of cognitive stimulation, and access to adequate nutrition, health care, and other resources such as a safe home and neighbourhood environment. Irrespective of their backgrounds, currently young children are being measured against a fixed ‘yardstick’ of ‘readiness’. This approach leads to many children being labelled as being in some way ‘deficient’ and impedes teachers’ abilities to see the child’s potential. Summer-born children are particularly at risk of this early ‘labelling’.

Evidence from a variety of sources reveals that this ‘earlier is better’ approach in relation to children in the early years is misguided, does not lead to improved outcomes in the long term and, indeed, can have harmful short- and long-term consequences. This evidence comes from developmental and cognitive neuroscience and psychology, as well as from studies into the characteristics of high-quality international pre-school provision and approaches based upon the model of *social pedagogy*. The *social pedagogy* model underpins early childhood education provision in many European countries and appears to more beneficially support children’s development as learners and emotionally well-adjusted citizens than the ‘earlier is better’ approach in the UK. This is not surprising, as current research into early emotional and cognitive development suggests that long-term well-being and success at school are most powerfully supported, not by early introduction of academic content, but by children’s developing executive functioning and self-regulation abilities, and by the satisfaction of their needs for feelings of autonomy, competence and ‘relatedness’. The focus on these developmental processes incorporated within the social pedagogy approach is clearly a major contributory factor in the comparative success of early education provision in many other European countries.

All children, at all ages, are ‘ready to learn’ and have been doing so since birth. Recent research using new techniques in cognitive neuroscience and developmental psychology has established that many of our cognitive processes are there and fully functioning at birth, or mature very quickly during the first 4-5 years of life. So, the significant question is not *whether* a child is ready to learn but *what* a child is ready to learn and how adults can best support the *processes of learning*.

The evidence reveals that effective early years pedagogies which work in numerous countries and contexts around the world do so precisely because they are fine-tuned to the needs of *specific communities*. In some countries it is so successful that there is a movement to extend this early childhood pedagogy into the lower classes of primary school (eg in many Scandinavian and Central European countries). Moreover, the notion of fine-tuning a pedagogy in to a specific community dovetails with evidence from the EPPE research (Sylva *et al*, 2008) which showed that children make better all round progress in settings where care and education are integrated and where children’s educational and social development are considered equal. An essential aim of the Children’s Centres is to articulate appropriate pedagogical approaches for the particular community and its young children, elaborated in consultation with parents. The EPPE findings showed positive effects in terms of children’s cognitive and social development, with integrated centres and nursery schools, in particular, producing superior effects (Sylva *et al*, 2004).

The empirical evidence from research into the characteristics of high quality international pre-school provision and *social pedagogy* models of early years education, enables the distillation of several key ‘ingredients’ required for an effective pedagogical model of learning and teaching in the early years. Early childhood educationalists want a pedagogy enabling an holistic approach to the child, in which they are supported in their current developmental levels and interests and in which the pedagogies, content and learning of particular groups of children can be fine-tuned to individual needs within their specific contexts and in collaboration with their parents and communities. The natural learning strategies of young children are valued, such as learning through activity, play, social interaction and individual investigation.

The revelations from neuroscience and developmental psychology show that opportunities for multi-sensory, active learning, for repeated practice and for progressively increasing the challenge offer the best means for development and the acquisition of expertise. Play is a central vehicle for such learning, allowing children to imitate adult behaviours, practice motor skills, process emotional events, and develop understandings about their world. Both free play and guided play are linked to social and academic development.

We argue that the provision of a mere ‘curriculum’ is inadequate for children in English primary schools’ Reception, Year 1 and 2 classes. A more holistic and balanced approach is required for young children in these crucial years of development than a framework of curriculum content, to be ‘transmitted’ in lessons. A ‘pedagogy’ is required, a broader concept than ‘curriculum’ in that it also encompasses the physical and social environments of young children, placing equal value upon their care, upbringing and learning. Such a pedagogy needs to start from the interests, experience and choices of young children within their individual social contexts, and practitioners working within this approach will need to recognise that *what a child learns influences how they will develop*. The aims of such a pedagogy will not be so much content-related but process-related; there will need to be an emphasis upon supporting the learning of skills and acquiring dispositions which will be useful to the child in their life-long learning, not just to pass short-term standardised tests.

In summary, what we need to consider is not how to make children ready for school, but how to make schools ready for children.

Introduction

‘School readiness’: getting who ready for what?

A growing body of research recognises that early childhood education improves children’s well-being, helps to create a foundation for lifelong learning, makes learning outcomes more equitable, reduces the effects of poverty and improves social mobility across generations. Results from the Organisation for Economic Co-operation and Development’s initiative, the Programme for International Student Assessment (PISA, 2009) for example, suggested that participation in pre-primary education is especially strongly associated with reading performance at age 15 in those countries where policy-makers have aimed to improve the quality of pre-primary education. Moreover, it was found that the relationship between attending pre-primary provision and better student performance at age 15 is strongest in school systems that offer pre-primary education to a larger proportion of the child population, that do so over a longer period of time, that have smaller child-to-teacher ratios in pre-primary provision and that invest more per child at this level of education. In other words, the extent to which attending pre-primary school is associated with learning outcomes at age 15 relates to *how* pre-primary education is provided.

In July 2011, with the publishing of *Supporting Families in the Foundation Years,* the British Government set out its vision for the services that policy changes will make effective for parents, children and families in the foundation years in England. There is an emphasis on early intervention and the role of different services working together to ensure that children, parents and other key areas receive early help where need is perceived. *Supporting Families in the Foundation Years* incorporated the Government's response to three independent reviews: the report on poverty and life chances entitled *The Foundation Years: preventing poor children becoming poor adults (*Field, 2011); the reports by Graham Allen, MP on early intervention, *Early intervention: the next steps (2010)* and *Early Intervention: Smart Investment, Massive Savings (2011)*; and the report by Dame Clare Tickell, entitled *The Early Years: Foundations for Life, Health and Learning (2011)*. In the consultation document, the Statutory Framework for the Early Years Foundation Stage (2011), in which the statutory standards for learning, development and care for children from birth to five are set out, there is a strong emphasis upon the rights of every child to the best possible start in life, support that enables them to ‘fulfil’ their potential and a recognition that;

Children develop quickly in the early years and a child’s experiences between birth and age 5 have a major impact on their future life chances. A secure, safe and happy childhood is important in its own right. Good parenting, and high quality early and pre-school learning, together provide the foundation children need to make the most of their abilities and talents as they grow up. (p.3)

Although the overall goals for children in their early childhood years within most countries are similar, evidence reveals that the principles underpinning Early Childhood Education and Care (ECEC) policy and the routes taken by different governments and institutions to achieve them within different countries, often look very different. This was highlighted, for example in the OECD Starting Strong II report (OECD, 2006), which showed that its calls for a more unified approach between pre-school ECEC and primary schools in 2001 resulted in quite significant differences in policy solutions for ECEC amongst its members.

**‘Schoolification’**

In its Starting Strong I report (OECD, 2001), the OECD had specifically recommended the strengthening and balancing of partnerships between early childhood education and the primary school within many of its member countries, aware of the need for improvement of continuity in children’s experience of pre-school provision. The recommendations were made in the hope that co-operation between sectors would lead to a more unified approach to learning, smoother transitions for children, and the recognition of early childhood pedagogy as an important part of the education process. The OECD encouraged partnerships to develop between the education and the care systems to bring together the diverse perspectives and methods of both ECEC and primary schools, mindful of the strengths of both. In its reporting in 2006 of the progress made by member countries (Starting Strong II, p. 57) the OECD made clear that there could be no doubt that in their varying approaches towards partnership between early childhood services and the primary school, governments had aimed to improve co-ordination between the sectors, albeit starting from different premises. Across the OECD countries, the basic structural standards such as adequate premises and space for children; child-staff ratios; implementation of curriculum frameworks; adequate professional education and certification of staff, etc., are generally respected in all early education sectors (albeit with some variations in practice, in particular with regard to child-staff ratios) and parental involvement is generally organised but at different levels of engagement.

However, specifically in its examination of the issue of policies relating to pedagogical frameworks and curriculum development, Starting Strong II identified stark divergences in approach by member countries, which it differentiated as *early education* approaches and *social pedagogy* approaches (OECD, 2006, p14). Features of both approaches are compared with respect to a number of criteria within the Starting Strong II document, revealing that, in summary, in some countries, policies promoting an *early education* tradition have generally led to a more centralised and academic approach to curriculum content and methodology in their early years provision, whilst policies endorsing the *social pedagogy* tradition have promoted more local, child-centred and holistic ECEC provision with associated pedagogical frameworks. The report thus raises the question of ‘schoolification’ of young children (OECD, 2006,p. 63) - whether France and the English-speaking countries are tending to see the question of partnership from the point of view of the school, from the standpoint that early education should serve the objectives of public education and provide children with ‘readiness for school’ skills. In contrast, countries inheriting a tradition of social pedagogy - namely the Nordic and the Central European countries – tend to see pre-school as a specific institution tuned more to supporting families and the broad developmental needs of young children.

**Growing tension**

The OECD’s international comparisons have thrown into relief a growing tension which has been developing within the UK over recent years, most recently encapsulated in the policy framework documents released by the government in 2011. This tension surrounds the phrase ‘school readiness’ or ‘readiness for school’ and its use, which stems from the fact that politicians, academics, educationalists and parents have not yet reached agreement on a consistent definition of ‘school readiness’ (Graue, 2006; Snow, 2006; Maxwell and Clifford, 2004). For example, within the *Supporting Families in the Foundation Years* (DfE, 2011) document and the cited Field (2011), Allen (2011) and Tickell (2011) reports*,* the phrase ‘school readiness’ or ‘readiness for school’ is used within various contexts and with a variety of connotations. This reflects a wider trend within policy advisory groups over recent years, in which the phrase has appeared with increasing frequency and to different ends. In parallel, the phrase is being used by academics and educational advisory groups to reflect their conceptions of young children’s ‘readiness’ within not just schools, but other provision of care and education. The net effect is that this variability in the use of the phrase, reflecting a variability in the definition and conceptual understanding of ‘school readiness’ between various policy, academic and educational advisory groups in England, is leading to an escalating tension; we are talking at cross-purposes.

**Definitional issues**

Many early childhood educationalists have called into question the very concept of ‘readiness’ but there is no denying that the term is used on a daily basis in policy and practice within the UK. What is ‘readiness for school’? Historically, the onus for ‘readiness’ has been placed squarely upon the child; however much of the work related to ‘readiness’ has confounded two distinct concepts: readiness to learn and readiness for school.

*Readiness to learn*

Clearly all children, at all ages, are ‘ready to learn’. So the significant question is not *whether* a child is ready to learn, but rather *what* a child is ready to learn. Originally advanced by leading child developmentalists, ‘ready to learn’ in relation to any particular skill or area of understanding is generally acknowledged as the developmental level at which an individual theoretically has the capacity to undertake learning of that specific material (usually the age at which the average group of individuals achieves the specified capacity). While beliefs regarding precisely which factors affect readiness to learn in particular areas vary widely, there is agreement, from this perspective, that readiness is situated in the domains of physical development, intellectual ability, social and emotional maturity and health.

*‘Readiness for school’*

‘Readiness for school’ is a more finite construct and implies a *fixed standard* of physical, intellectual, and social development that enables children to meet school requirements and assimilate curriculum, typically embracing specific cognitive and linguistic skills. Within England, the combination of policy changes over recent years, such as encouraging parents to start their child in a Reception class in the September following their fourth birthday (DfE, 2011) and the use of the phrase ‘ready for school’, has led to multi-interpretations of *when* a child actually starts school. Misunderstandings arise because, although the statutory age for a child to start in Year 1 remains five years (or the term following their fifth birthday), in practice, most children start their school career at the age of four, when they join a Reception class in a maintained school, as recognised by the Tickell report (p. 19). Proponents of this view interpret the Reception year as the start of school and understand that, although still included in the Foundation Stage curriculum, this is a ‘transition’ year, in which a child is prepared for entry into Year 1. Opponents of this view, on the other hand, argue that policy endorsing the preparation of children for starting school is based on the premise that the curriculum (National Curriculum) in Year 1 is ‘set’ and children must be fit into it as it stands. They argue that a more appropriate strategy is to adapt the curriculum to the developmental and experiential levels of the children who enter Year 1, whatever their cognitive and social skills. They take the position that if children are faring poorly there, the solution needs to be found in the school ‘offering’, including perhaps a recognition that the National Curriculum is inappropriate, rather than assessing the child as ‘inadequate’. In this view, ideally, the transition from pre-school programmes to Reception and then into Year 1 schooling should be seamless and continuous, not the abrupt shift to a completely different social context and set of academic demands that the notion of ‘readiness’ implies. Many early years educationalists believe that the important issue is not *where* young children’s educational needs are met, but whether the types of curriculum they are offered are of high quality, appropriate for their developmental needs and offered through appropriate teaching methodologies.

Assessing children’s diverse skills related to the school curriculum, and tailoring appropriate teaching and learning opportunities to the variety of understandings, learning styles, and social skills that the children in any given class will exhibit requires well-trained teachers. Anything less than this will not serve the educational needs of children who, regardless of the age for school entry, will vary considerably in their social, emotional, and intellectual skills. Early childhood educationalists suggest that a much greater service would be provided to children if the focus was more on making school ready for children than on making children ready for school.

*The readiness of schools*

Many early childhood educationalists have turned the issue of ‘readiness’ on its head to focus on schools rather than children (see Fabian and Dunlop, 2002; Dunlop and Fabian, 2003). Certainly, some children are not ‘ready’ to sit at desks and do paper-and-pencil activities for long periods of time when they turn five or even six years old. But that does not mean that they cannot benefit from any kind of education, appropriately delivered. The pertinent policy question here, therefore, relates not to what children need to know or be able to do when they get to school, *but what schools need to do to meet the social and educational needs of the children who walk through their doors*. A growing number of educationalists and teachers have therefore adopted a broadened conceptualization of ‘readiness’, in which it is regarded as a condition of institutions, as well as individuals. ‘*Readiness’ here is understood as the match between the readiness of the child and the readiness of the environments that serve young children*. This contemporary understanding of readiness acknowledges that the sources of readiness are not only the child’s emotional, cognitive, linguistic, and social abilities, but also the contexts in which children live and interact with adults, teachers, and other community members. In order to affect a child’s school readiness, multiple contexts including families, schools, neighbourhoods and early childhood settings must be involved.

Part 1 of this paper will examine what the debates relating to ‘readiness’ have been about thus far, as reflected in academic, multi-agency and policy definitions in different parts of the world. The growth of the concept of ‘readiness’ is examined along two strands; as understood and used by politicians and policy-makers, reflected in the policies implemented in the UK over the years since the World Wars and the concept as understood and used by educationalists and teachers in the UK during the same period.

Part 2 investigates the lively and voluminous body of research literature which has emerged over the last decade in relation to worldwide early childhood policy and practice. The focus here is twofold. First, this review attempts to illuminate issues which relate to the dangers of a ‘school readiness’ approach, incorporating an ‘earlier is better’ mind-set and an emphasis on a centrally determined curriculum which is to be transmitted and formally assessed. Second, the review explores the guidance offered by the research as to important constituents of what might be considered to be an effective ‘social pedagogy’ approach. This incorporates evidence concerning the nature of early child development and provides support for a process-orientated pedagogy which attempts to provide children with experiences likely to support their social, emotional and intellectual development. Research evidence in four domains relevant to this twin focus is examined, accepting that these are not discrete domains and that many of the current debates ‘overlap’, but delineating them nonetheless for clarity within the review. These research areas are as follows:

* cognitive, physical, social and emotional aspects of young children’s development
* the diversity of children’s early life experiences, including family circumstances and styles of parenting;
* transitions and school starting age, including the equality and diversity duties upon institutions ;
* theories of learning and approaches towards early learning, including the role of play.

Part 1

A critical review of Approaches to and Definitions of ‘School Readiness’

**Introduction**

This part of the review starts with a detailed investigation of the various and contradictory uses of the term ‘school readiness’, as used by politicians, policy-makers and advisors to government, evidenced through the appearance of the term in recent consultation documents and ‘independent’ reviews relating to the early years and the Foundation Stage. The several interventions into the provision of education and care within the early years sector over the past 60 years are then traced, in an attempt to delineate the educational motivations, rationales and strategies behind the political interventions. There then follows an investigation of the ‘wider perspective’, an examination of the views of international bodies such as the Organisation for Economic Co-operation and Development (OECD) for example, upon the British governments’ track record in relation to early years interventions over recent years, in comparison to those of other member countries; the resulting contrast between the child-centred approaches facilitated in some countries is distinguished from the curriculum-centred approaches adopted in others. There then follows a detailed review of the educationalists’ perspectives upon the interventions in England during this same post-war period, which illuminates some large gaps between the policy-makers’ and the policy-implementers’ conceptions of the purpose of early years education. Next, an educational framework is set out, for a pedagogy for the early years sector in England based upon social constructivism, which the professionals within the early years sector uphold in theory and in practice and desire to be enabled to implement whole-heartedly not only in the classrooms of Foundation Stage settings around the country, but further, into early years Key Stage 1 classrooms. Part 1 ends with a description of the dilemma faced by these same professionals, who find themselves compromised by the prescribed curriculum required of them by government, at odds with the broader, holistic approach of pedagogy. The section ends by asking ‘What next for school readiness?’

* 1. **Recent use of the term ‘school readiness’ and the associated concepts it embodies within policy-setting in England**

Within *The report of the Independent Review on Poverty and Life Chances (*Field, 2010) economic reasons are cited for investment in the early years (p.40) and an emphasis is placed upon aiming for a uniformity of child-readiness for school to aid the primary teachers’ task;

Investing in children and families before school would also enable the Government to put taxpayers’ investment in primary and secondary education to much better effect. Most skills developed in early life stay with children into later life and are self-reinforcing. Greater equality of school readiness would make teaching, particularly in the first few years of primary school, easier and more productive. Overall, this means that it is highly productive to invest in disadvantaged young children – there is no trade-off between the equity and the efficiency of investment for this group of children. (p.40)

This is mirrored in *Early Intervention: Smart Investment, Massive Savings* (Alan, 2011), where social and economic reasons for investment in early intervention programmes are highlighted in the introduction (p. ix), in a letter to the Prime Minister;

This is a tremendous opportunity for this and future governments to take a long-term view on tackling causes rather than symptoms, reducing dysfunction and creating essential social investments with good rates of return. Countless children, who would otherwise underachieve, will be able to meet their potential and in turn become fully rounded citizens and, above all, excellent parents if the right decisions are taken now.

From describing a view, that the Government should demonstrate national leadership on Early Intervention by making a public commitment to bring about lasting improvements in the lives of children in order to forestall many persistent social problems and end their transmission from one generation to the next, and to make long-term savings in public spending through implementing a range of ‘tried and tested’ policies, Allen steps into a definition of ‘school readiness’ (Allen, 2011, pp.2-3);

School ready – having the social and emotional foundation skills to progress in speech, perception, ability to understand numbers and quantities, motor skills, attitude to work, concentration, memory and social conduct; having the ability to engage positively and without aggression with other children and the ability to respond appropriately to requests from teachers. (p.3)

He recommends (p. 14) that there should be a commitment to regular assessments of children’s development from birth up to and including age 5, focusing on social and emotional development;

This would help to ensure that the 0–5s are helped at the most cost-effective point in their lives to develop the social and emotional bedrock that is essential to their future progress and potential. I am even more convinced now that this is essential and that the assessment should include a measurable outcome that will allow the impact of interventions to be monitored and analysed for cost-effectiveness. I further recommend that ‘school readiness’ should be adopted as an intended outcome of Early Intervention and be used as a measure, or basket of measures, of the impact of investment and the extent of savings, and thereby as an incentive for further investment.(p.14)

On page 19 of the *The Early Years: Foundations for Life, Health and Learning (2011)* the definition of ‘school readiness’ takes on a different tone from the Allen and Fields definitions, where it shifts to a focus upon the ability of the child to cope with the challenges of a new environment and its associated demands;

Most children begin reception class at age 4, and for most parents and carers this is when school life begins. If children are not ready for this transition or the move to Year 1 because, for example, they are not yet toilet trained, able to listen or get on with other children, then their experiences of school could present difficulties which will obstruct their own learning as well as other children’s. The evidence is clear that children who are behind in their development at age 5 are much more likely than their peers to be behind still at age 7, and this can lead to sustained but avoidable underachievement.

Many readers have interpreted the use here of the term ‘ready’ not only to indicate the government’s expectation that children should be *prepared for* the established primary school system and its associated Year 1 curriculum, but even more strikingly, the wording of the phrase ‘If children are not ready for this transition...’ sounds particular alarm bells amongst early years educationalists, implying as it does that if a child is ‘behind’, as perceived by the child’s primary school teacher, then there will be problems, primarily for the child in ‘fitting in’ to school. Moreover, this phrase clearly refers to the move of a child into the Reception year, demanding that all children should be *made ready* for this change at the age of four. The use of the phrase ‘behind in their development’ presents an over-simplified view, failing to recognise that development is uneven and multidimensional, arguing that a threshold for ‘readiness’ cannot be established because a child’s level of development varies across different dimensions; children are not likely to achieve the level considered important for ‘school success’ in all domains at the same time. In many early years educationalists’ minds the question of curriculum is immediately brought to the foreground here; the Reception year is theoretically still within the Foundation Stage curriculum, with its emphasis on developmentally-appropriate methods of teaching and learning through play, but in a document which is emphasising the start of school as being at age 4, with entry into Reception, is the government directing early years practitioners to use play in order to achieve ‘readiness for school’?(DfE, 2011);

Each area of learning and development must be delivered through planned, purposeful play and through both adult-led and child-initiated activity. There should be a fluid interchange between activities initiated by children, and activities led or guided by adults. This will move increasingly towards adult-led learning as children start to prepare for reception class. (p.5)

It seems so; as the detail within the Framework (DfE, 2011) begins to focus upon the curriculum, again and again the association between curriculum and ‘readiness for school’ is emphasised. Required key skills and capabilities are highlighted in terms of the ‘prime areas’ upon which practitioners are directed to focus in working with the youngest children and spelling out that for the older age range, the balance should shift towards a more equal focus on all areas of learning, as children grow in confidence and ability within the three prime areas;

But throughout the early years, if a child’s progress in any prime area gives cause for concern, practitioners must discuss this with the child’s parents and continue to provide focused support in that area, reducing the risk that the child will struggle when starting Key Stage 1. (p.5)

Again, as The Framework prescribes the learning and development requirements in terms of the skills, knowledge and attitudes children need as foundations for good future progress, through school and later life, the onus is put upon providers to complement and reinforce children’s experiences at home in order to ‘promote the learning and development of all children in their care, ensuring they are ‘school ready’, highlighting the dangers of a child not achieving ‘readiness’;

A strong start in learning and development helps prepare children for the school environment, so they are ready and able to manage transition into reception class and the move to year 1. Children who are not ready for school may experience difficulties that disrupt their learning, and that of others. Early years providers must guide the development of children’s capabilities with a view to ensuring the children in their care complete the EYFS ready to benefit fully from school. (p.5)

Hence it is clear that the phrase ‘ready for school’ is used frequently and variously even within closely-published policy documents produced by a tightly-knit group of policy-makers and politicians. Not only are economic and social reasons used as a basis for interpreting the concept as readiness for lifelong learning, but in its use in relation to determining and directing goals for the early years curriculum and teaching methods, there is clear evidence that the concept of ‘readiness for school’ is being used inconsistently in government documents, conveying contradictions and a range of different understandings and thereby pointing up its failure to agree upon a fundamental philosophy for early years education and care. The dominant perspective seems to be one based on a utilitarian view that the child is a unit to be prepared for a life of work and little value is placed upon a child’s individuality and background; it seems that childhood is a necessary ordeal to be to be survived in preparation for adulthood, as foreshadowed in the words of Scruton;

They come to the teacher unformed, ignorant and distracted; their existence as citizens, and the rights and immunities which confer equality... lie at the end of the educational process and not at the beginning.(Scruton 1987: p.44*)*

Contrast this with Plowden's view that

A school ... is a community in which children learn to live first and foremost as children and not as future adults. (Plowden, 1967: p.187)

Theoretically, each elected government must decide upon its menu of policies for early years provision based on a sincere desire to provide adequate and appropriate economic and social support for young children and their families within the UK. However, increasingly, the political moves of government to address deep-seated and historical economic and social imbalances through educational policy solutions have been perceived by early years educationalists as interventionism. Many of the prescribed early years educational policy solutions are interpreted by early years educationalists as a government’s efforts to achieve short-term political goals. There is frustration with policy directives from ‘on high’, which are based on what educationalists know to be incomplete evidence of appropriate education methodology or curriculum design. Arguably this trend towards interventionist policy-making – the definition of a bank of knowledge deemed valuable for young children to acquire and the prescription of how and when they must become entitled to this curriculum – is essentially based upon an assumption that ‘effective’ education can be measured and that legislating for changes in a pre-school curriculum will lead to higher ‘quality’ teaching and learning – resulting in higher children’s test outcomes. The emphasis upon ‘school readiness’ in recently released government documentation exacerbates the perception of interventionism, revealing a widening ‘gap’ between the policy makers and the policy activators. In the following section, the history of policy in relation to early childhood is traced as a backdrop to the current tension.

* 1. **Policy in relation to early childhood, 1930 – 2011; interventions and rationale**

The first early childhood programmes provided either full day care for young children whose parents were employed, or part-day ‘enrichment’ experiences for families who did not need care for their children while they worked. Gradually these two strands, care and education, began to merge into the field we now call early childhood education and care (ECEC). In reality, this pre-school phase remains characterised by diversity in the types of provision and range of services offered, in which the main sectors include government funded (maintained) nursery schools and classes, Reception classes in maintained primary schools, private schools and day nurseries, local authority Children’s Centres, day nurseries, family centres, home- and community-based playgroups and childminders. Hence the sort of experience had by different children varies in ‘flavour’, orientation and quality.

Historically, policy provision of ECEC was initially related to women’s employment. The separate development of care, health and education in pre-school services effectively started at the end of the First World War, during which, public involvement in the provision of day care was necessitated in order that women could provide war effort; during this time over 100 day care centres were developed outside the formal schooling system across the country. At the end of the War, legal powers were awarded to local health authorities to make provision for day nurseries or to assist voluntarily established nurseries. Again, as women were recruited to replace men in production roles during the Second World War, new provision was needed for their children and by the end of the War there were 62,000 nursery places in England and Wales (Cohen, 1993). However, aiming to engineer changes in the social and economic situation such that women would leave the workplaces open to the returning men at the end of the war, nurseries began to close and free state provision for pre-school ECEC declined sharply. However, when women’s employment began to rise again in the late 1950’s, the State began to support the direct costs of child rearing through the introduction of a tax-financed system of family allowances. This, in turn, was replaced in 1975 by a Child Benefit.

In 1972, a White Paper aiming to increase nursery school places for 50% of three-year-olds and 90% of four-year-olds by 1980 was proposed but was not forthcoming due to the economic recession and in 1980, the Government removed the duty on local authorities to provide for nursery education, a measure which had little practical effect on the expansion of provision for the under fives as by this time most local authorities in the UK were admitting some four year olds, full time, into reception classes in schools and gaps in the provision for younger children were increasingly being met by the voluntary and private sector. Throughout the 1970s and 1980s, non-statutory preschool provision was neglected and undeveloped as successive governments held that early care was pre-dominantly a private responsibility for parents, rather than a public responsibility. In parallel, as mothers throughout the 1960s, 70s and 80s moved into the work force, expansion of day nurseries in the private sector was very rapid; in the second half of the 1980s it increased by 203%, providing 76,000 places (Bertram and Pascal, 2001, p.11) and this period saw the rise of a new type of voluntary preschool provision, namely playgroups. Since no cheap alternatives existed, parents, especially women, developed local voluntary and community provision to meet their needs and which were generally welcomed by the LEAs as low-cost substitutes for nursery schools. Over time these groups began to self-organise and eventually become formalised national charities recognised and supported, in part, by Government grants.

By the mid 1990s pre-school provision had became a target for policy intervention arising from perceived inequalities in standards and effectiveness across the diverse range of providers, a falling birth rate, and increasingly through the 1980’s and 1990’s, the fact that non-statutory aged children were being admitted into schools. At this time, as detailed by Wood (2004), politicians in the UK started to become interested in the relationship between teaching and student achievement at all levels, focussing on using this relationship as a lever for educational and social change (Wood, 2004: p.361); interventions in specifying learning outcomes for young children began to be perceived as an opportunity to influence their subsequent achievement in statutory schooling.

In 1996, the Conservative government introduced the first stage of a Nursery Voucher scheme linked to a set of guidelines for pre-statutory settings: Desirable Outcomes for Children's Learning on Entering Compulsory Education (SCAA, 1996). The explicit expectation of the SCAA publication was that preschool education programs would enable children to reach the desirable outcomes by compulsory school age. This constituted governmental responsibility for pre-school education from the age of 4 years, in particular for children from disadvantaged or ‘at-risk’ backgrounds. The Voucher scheme allowed parents to use vouchers worth up to £1,100 per child for up to three terms of part-time education for their child, in any form of preschool provision. The intention was to bring a market economy to the sector and to support parental choice. However, following the vouchers’ introduction, more 4 year old children were admitted to state primary schools. In order to register for the receipt of vouchers, pre-school provisions had to show that they were moving children towards the DLOs as defined by the School Curriculum and Assessment Authority (SCAA, 1996). The DLOs were ‘learning goals’ that children should achieve before they entered compulsory education. They emphasized early literacy, numeracy, and the development of personal and social skills, and they contributed to children's knowledge, understanding and skills in other areas.

However, in 1997, in an attempt to raise standards through the significant increase of public funding, the incoming Labour Government abolished the voucher scheme and provided funding directly to the preschool settings for part-time places for four-year-old children and an increasing number of part-time places for three-year-old children. In 2000, the Qualifications and Curriculum Authority replaced the *Desirable Outcomes* with *Early Learning Goals* (QCA, 2000)*.* These differed little from the DLOs and retained the same six areas of learning. However the significant change, in terms of curriculum directive, was that the *Early Learning Goals* represented what most children were expected to achieve ‘by the end of the foundation stage (from age three to the endof their Reception year)’ instead of ‘on reaching compulsory school age.’ The receipt of funding by pre-schools for three- to five-year-old children was dependent upon each setting meeting government requirements for regular inspections, in terms of the new framework of *Early Learning Goals* (QCA, 2000).

The period between 1997 and 2004 was characterised by a series of major policy developments in respect of the Labour government’s agenda for children and families in the UK. Broadly, the policies which sought to expand educational and welfare provision for young children and protect those children who are vulnerable or disadvantaged, commanded greatest support. These initiatives were mostly introduced during Labour’s second and third terms and included *Every Child Matters* (DfES, 2003),the *Children’s Plan* (DfES, 2007*)*, *Sure Start*, (1998, DCSF), *Narrowing the Gap* (DCSF, 2007) and the expansion of early childhood care and education. In parallel, there was widespread appreciation of Labour’s financial investment in pre-school and primary education, the level of which had been stable during the early and mid 1990s but rose sharply from 1998. One simple measure of this was the spectacular increase in the number of primary and nursery school support staff, from 75,000 in 1997 to 172,000 in 2008 (Alexander, 2010). In particular, the introduction of policy in 2008 to integrate care and education for young children was applauded; the introduction of the Early Years Foundation Stage (EYFS) brought together requirements for learning and development with those for welfare. The measure was taken in recognition that young children’s educational and social development were considered of equal value and the EYFS was devised with the following explicit aims: setting the standards for children’s learning, development and care; improving quality and consistency in the early years sector; laying a secure foundation for future learning through learning and development planned around the individual needs and interests of each child; providing for equality of opportunity; and creating the framework for partnership working. However, the policies initiated during Labour’s first term which aimed to ‘raise standards’ in literacy and numeracy continue to be particularly controversial amongst educationalists: the national literacy and numeracy strategies introduced in 1998 and 1999 – themselves adaptations of the Conservatives’ national literacy and numeracy projects of 1996 – and the associated structures of targets, high stakes testing, closely-prescribed teaching methods, inspection for compliance and school performance tables have continued to cause concern amongst parents, practitioners and educationalists.

In 2010 the Government extended the entitlement for all three- and four-year olds to 15 hours of free early education each week for 38 weeks a year and by 2011 most local authorities were already providing some free early education to the most disadvantaged two year-olds, with a commitment to extend this to about 20% of two-year-olds nationally from 2013. In June 2011 the Coalition government confirmed that The Early Intervention Grant, announced in December 2010 contains enough money to maintain a network of Sure Start Children’s Centres so they are accessible to all, and will support families in greatest need. The Department for Education Business Plan (DfE, 2010) commits to working with local authorities to develop plans to: increase voluntary and community sector involvement within children’s centres through greater local authority commissioning; improve accountability arrangements for children’s centres; increase the use of evidence based interventions in children’s centres – so that state support goes to services which have proven effectiveness; and introduce greater payment by results for children’s centres – so that providers are rewarded for the results they achieve.

**1.3 OECD’s assessment of early years policy within England as ‘Schoolification’**

It is not only early years educationalists within the UK who are perturbed by the general direction of education policy here over recent years. In the OECD report Starting Strong II (2006: p.63), in describing the early education policy approaches to the early years evident in some member countries, including the UK, with their emphasis upon cognitive development through promoting the child’s acquisition of a range of knowledge, skills and dispositions in preparation for entry to school, several key disadvantages inherent in the policy approach are highlighted. The evidence shows that in attempts to bring closer together the contents and pedagogical methods in early and primary education within many member countries including England, ‘the policy approach has tended to favour teacher-centred and academic approaches, resulting in the use of programmes and teaching styles that are poorly suited to the psychology and natural learning strategies of young children’ (p.62).

In direct contrast to the early education approach, what the OECD (2006) refers to as t*he social pedagogy tradition* is favoured in many Nordic and Central European countries. This constitutes a distinctive early childhood approach to children’s upbringing, in which a broad concept of *pedagogy* is understood, an approach to children which combines care and learning, with equal emphasis upon both of these elements. The pre-school is conceptualised as a place in which the approach to ‘educare’ focuses upon support for children in their *current* developmental tasks and interests. Moreover, rather than ‘schoolifying’ ECEC services, there is a strong belief in these countries, reflected in policy decisions, that early childhood pedagogy should filter through into the lower classes of primary school (Martin-Korpi, 2005).

The divergence in policy direction by certain governments within the OECD membership was further brought into the limelight in relation to research findings from the PISA evaluation (OECD, 2009) of the quality, equity and efficiency of school systems in some 70 countries. The results of the fourth phase of PISA (the OECD’s Programme for International Student Assessment) should have made worrying reading for UK policy-makers.

Every three years, PISA tests 400,000 15-year-olds from 54 countries in reading comprehension, mathematics and science. In common with many international assessments, PISA has methodological and statistical limitations. However, the OECD uses elaborate procedures to ensure that the sampling of students and schools is fair and that the tests are not related to any specific curricula but are based on the knowledge and skills young people need in the modern world. The goal of the PISA research is essentially an economic one, to provide information about the efficacy of national education systems. Since PISA has now been implemented for a decade, it is possible to explore not just where countries stand in terms of student performance, but also how learning outcomes or gaps between higher- and lower-performing students are changing. The UK has participated in all four phases of PISA. In 2000, the UK’s performance was welcomed by the then Labour government – seventh place in reading, eighth in maths and fourth in science. The 2003 results were barely discussed (because the UK sample was too small for the OECD to be certain that it was truly representative and so the results were omitted from the published report). The 2006 results confirmed a decline from 2000. In reading, the UK average score dropped to only just above the OECD average; in maths the fall was to below the OECD average and only in science was the slippage less worrying, still well above the OECD average. Strikingly however, cross-country comparisons of the PISA 2009 data revealed that England’s (and the UK’s) mean score, in reading, mathematics and science had not changed significantly between 2006 and 2009 and barely reached the OECD 2009 average for reading and mathematics in that year. The wide confidence intervals of the scores allowed for little certainty but they implied a downward trend over the previous ten years.

There was a relatively large difference between the score points in reading and science of the lowest scoring pupils and the highest scoring pupils from the UK cohort, compared with high-performing countries such as Finland. There was a relatively low difference between the score points in mathematics of the lowest scoring pupils and the highest scoring pupils from the UK cohort compared with other countries – so, compared with the top performing countries in the world England was lacking in high achievers in mathematics. In other words, the England results showed substantially large gaps between the scores for the 95th percentile (highest scoring) and the fifth percentile (lowest scoring) groups except in maths. A country with a wide spread of attainment may have large numbers of pupils who are underachieving as well as pupils performing at the highest levels. A country with a lower spread of attainment may have fewer very high achievers but may also have fewer underachievers. England’s relatively long tail of underachievement does not compare well with the highest-scoring countries. By contrast, Finland for example, not only achieved high average scores but also had some of the smallest spreads of scores. Its education system is seen to be both high achieving and well balanced across its population.

The Economic, Social and Cultural Status (ESCS) Index is the measure of socio-economic background in PISA. It draws on pupils’ responses to questions about their parents’ background and education and possessions in their homes. Analysis of this data reveals an impact of economic, social and cultural status upon children’s performance. England was found to have a significant achievement gap between those who are highest and those who are lowest on the ESCS Index; those in the bottom quarter of the ESCS Index had a mean reading score of 451 whilst those in the top quarter had a mean score of 544 (in comparison with England’s overall mean score of 495). So, in England, socio-economic background can be seen to explain 14 per cent of the variance in scores (as compared to just 9 per cent in high-performing Japan). Such results from the PISA process reveal that the performance gap between the most advantaged and disadvantaged pupils is relatively high in England compared with other OECD countries. Moreover, in the student questionnaire, pupils were asked about the time they spent on reading for enjoyment; it seems from these figures that reading for pleasure is not a well-liked activity among this age group. In England the mean score for those who stated that they never read for enjoyment was 459 while the mean score for those who read (for 30 minutes or less per day) was 505. Whilst a possible interpretation is that poorer readers are less likely to enjoy reading, it does appear however that it is the enjoyment factor which has a positive connection with scores, rather than the amount of time spent reading.

The suggested decline and spread of the UK scores must raise doubts about the direction and pace of educational policy in England over the past 10 years. The evidence that there are high-performing countries within the PISA framework, which manage to provide high quality education to *all* students, irrespective of socio-economic background, throws into relief the many issues facing education policy-makers and providers in England. The evidence would suggest that here, the educational system is failing our citizens of tomorrow; disadvantaged children are *still* not having access to the best teachers, that the relationship between the socio-economic background of children and schools and children’s academic performance *continues* to decline. Moreover, the contrast between the picture emerging from the PISA results and the rising trends of national SATs and GCSE results, begs the question whether teachers have been conditioned into ‘teaching to national tests’ rather than promoting pupils' broader knowledge, skills and enjoyment. The educational and social systems in England demand immediate and holistic solutions. The government may be surprised that the OECD categorises England as having a curriculum- and test-led policy approach to its early years offering. It may consider that its Foundation Stage Review recommendations point adequately to a learner-focussed curriculum based on the various media of play and emphasises the theory of child-centred learning. However, it needs to look long and hard at the contradictory emphases evident within key statutory Guidance documents, in particular within the *Statutory Framework* (2011), *The Early Years Foundation Stage Review* (Tickell, 2011), *The Early Years: Foundations for Life, Health and Learning* (Tickell, 2011) and *Early Intervention: The Next Steps* (Allen, 2011), in order to work out what it intends to do and how.

* 1. **Effects of policy on early years education and ‘school readiness’; the early years educationalists’ perspective**

The concerns amongst educationalists in England relating to appropriate early years curricula and a child’s ‘readiness’ for school can be seen to stem from their understandings of what happens in ‘early learning’ and the difference in this perspective from that of the government. Frustration and tension have also arisen partly due to the timing of policy decisions. At the same time as psychological understandings about children’s learning have been deepening and educationalists have been designing pedagogies based upon increasingly sophisticated empirical research justifying the appropriateness of these methodologies, government policy decisions, relating to early years and KS1 practice, started to encroach directly upon classroom practice. For many teachers the introduction of the National Curriculum in particular played a large part in this; the edifice of attainment targets and statements at numerous levels (subject to frequent revision) presented them with an enormous task in terms of curriculum mapping and planning - little wonder, then, that many decided it would be easier to manage if kept in discrete subject areas, with the resultant swing towards subject-orientated curricula. Many schools constantly attempt to devise appropriate learning experiences for children, but the burden of constantly demonstrating which attainment targets are being fulfilled in which subjects is heavy. Curriculum development has also continued to be constrained by the tendency of ‘subject educationalists’ to prioritise curriculum content over understandings of *how* children learn and focussing upon engaging the children with the content in ways appropriate to their learning tendencies. Teachers are forced to measure children against assessment instruments designed to compare children against nationally expected outcomes and the Foundation Stage Profile (QCA, 2003) was part of this system. Within the following section the effects of education policy decisions upon early years pedagogy in the UK are traced in order to illuminate the extent of the educationalists’ dilemma.

Care programmes for young children developed separately from early years education systems within the UK, with different methods of governance, funding streams, and training for staff. As in most countries, primary schooling is the older and stronger institution in the UK and had already been orchestrated into an established national system by the end of the 19th century, whereas early childhood systems had been slower in their development, as maternal or extended family care was the usual means of rearing young children during most of the 20th century. Until late into the century it was assumed that ‘real school’ began only when children entered primary school – even Reception was just preparation for later schooling. Hence programmes formally promoting cognitive development for four and five year olds were inconceivable at the time. The debate relating to the underlying reasons for the need and benefits of pre-school provision arose in the mid sixties, as reflected in the Plowden Report (1967). With debates focussing on perceived conflicts between the needs of the child versus the needs of the child’s parents and carers and their employers in the availability of state pre-school provision, the Plowden Report recommended that provision of state nursery should be part time, limited to a morning or afternoon session, rather than full time, because of the ‘dangers of allowing children to attend a nursery school or class at too early an age for too long a period each day’ (p.121).

In 1988, the Education Reform Act had set out for the first time a National Curriculum for England and Wales, presenting a comprehensive restructuring of the educational system and justifying its implementation in the name of raising standards in schools and offering a broad and balanced curriculum (Moon, 1994). Although the National Curriculum applies only to students of compulsory school age, its introduction has inevitably had an effect upon programmes for children under statutory school age (Blenkin and Kelly, 1994; Moss and Penn, 1996) because national standard assessment tasks (SATs) were simultaneously introduced for children in Years 2, 6 and 9 in English and maths. The results of SATs tests have been used to place schools in ‘league tables’ revealing their comparative ‘performance’ – and OfSTED inspections have become increasingly focused on ‘effective’ practice as a result. As government investment became available for early years provision, two government-commissioned reports appeared, the Rumbold Report Starting with Quality (DES, 1990) and the Royal Society of Arts Report Start Right (Ball, 1994), both of which stressed the importance of developing an ‘appropriate educational curriculum’ for the early years. The Rumbold Report, for example, recommended a curriculum based on eight main areas of learning, following in the footsteps of Her Majesty's Inspectorate (HMI) publication, The Curriculum from 5 to 16 (DES, 1985), which included the aesthetic and creative subjects, the human and social, language and literacy, mathematics, physical, science, spiritual and moral and technology (DES, 1990) – there was no reference to early childhood learning models.

When, as outlined in section 1.2, the government made its first direct ‘intervention’ in 1996 within the realm of pre-school provision, its employment of the School Curriculum and Assessment Authority (SCAA, 1996) was significant. Their specification of a set of Desirable Learning Outcomes for children’s learning (DLOs) constituted the definition of a bank of knowledge and skills for pre-school children for the first time in the UK. The fact that a ‘curriculum authority’ drew up the parameters and that the goals to be achieved by children before they entered Key Stage 1 were focussed in the areas of early literacy, numeracy and the development of personal and social skills, was not palatable to the early years community. A major issue amongst early years educationalists following the introduction of the DLO’s related to high levels of inconsistency perceived to be evident (a) in their implementation by practitioners in order to achieve the prescribed OfSTED inspection criteria and (b) in their actual assessment by OfSTED, a process which was perceived as inconsistent and ‘patchy’ by many (e.g. Mortimore and Goldstein, 1996). The net effect was increasing evidence of inappropriate practice in many settings, where children were required to undertake activities and tasks considered to be too formal for pre-school children, exacerbated further in 1997 when Baseline Assessment was introduced, in order to be able to measure how much ‘value’ would be added to a child’s education by the end of KS1.

The imposition of the National Literacy and Numeracy Strategies and – probably most significantly – the perceived pressure to ‘add value’ in KS1 in order that children achieve well in the SATs at the end of Year 2 and thereby prove the ‘efficiency’ of the education system, have all had an impact upon the pedagogy of the early years. Most of the ensuing debate has centred on the fact that although the curriculum guidance claimed to describe ‘integrated learning’, it also emphasized literacy and numeracy as distinct curriculum areas with particular and pre-specified learning outcomes. The National Literacy (NLS) and the National Numeracy strategies (NNS) (DfEE, 1998 and 1999) were government-generated teaching frameworks prescribing curriculum content and learning targets with the specific goal of improving educational attainment. It has been argued (e.g. Smidt, 2002) that early years educators felt great pressure to promote the NLS and NNS in order to meet the OfSTED inspection criteria. They were supposed to be introduced into Reception classes during the summer term, in order to ‘prepare’ the children for the type of work they would be tackling in Year 1, but in reality this introduction often happened (and continues to happen) earlier in the academic year, in order to ensure that the learning is accomplished ‘early enough’ to reach the attainment targets. However, it was more in relation to the prescribed teaching strategies in the schemes of work that alarm was caused amongst early years specialists, with their echoes of curriculum-focussed rather than child-focussed approaches. Even in July 2011, the advice from the Department for Education on their website remains as follows;

The National Literacy and Numeracy Frameworks for teaching should be used as the main teaching guides during the literacy hour and daily mathematics lessons. The frameworks set out the literacy and numeracy teaching objectives for each year from Reception Year to Year 6*.* (DfE, 2011)

One specific dilemma, faced by early education educationalists in England, is to find a workable and suitable pedagogy to offer young children in Reception classes, having been directed in statutory guidance to ‘prepare’ them for entry into Year 1, yet believing that curriculum such as some of the content prescribed in the Literacy Strategy in particular, is overly teacher-directed, and inappropriately de-contextualised for young children. The Government’s prescription to deliver synthetic phonics programmes, for example, has left many early years practitioners feeling unable to ignore or over-ride the directive; all English schools were told to put in place a discrete synthetic phonics programme as the key means for teaching high‐quality phonic work, which became effective from 2006. In a paper by Wyse and Goswami (2008), the evidence presented by the *Rose Review* (2006) to support the change to synthetic phonics was analysed and it was revealed that the review provided no reliable empirical evidence that synthetic phonics offers the vast majority of beginners the best route to becoming skilled readers. The available empirical evidence in English was then analysed and Wyse and Goswami showed instead that the data support approaches based on *systematic* tuition in phonics and that evidence points up the effectiveness of contextualised systematic phonics instruction. In the EYFS Review (Tickell, 2011), mention is made (p.22) of the ‘considerable debate about the right age to begin more overtly instructional approaches to learning, for example to develop reading and writing skills’. The Review ostensibly gives teachers ‘permission’ to decide for themselves the best way to support children’s emerging literacy; ‘Skilled practitioners are able to adopt a flexible approach’ – however, there is a strong implication at the end of the paragraph as to the direction that ‘skilled practitioners’ should really be taking;

Teachers should make individual judgements about children’s readiness for more overt instruction, based on each child’s development, identifying children who need further help with oral language and concentration skills. Some specific studies suggest that forms of overt instruction in language and reading, including systematic phonics for example, can be effective in some settings for some children younger than five.(p.22)

The combination of these politically initiated interventions has been perceived by early years professionals as an attack on traditional child-centred preschool education. Their main concerns stem from a pedagogical perspective; the subject-based approach of the National Curriculum with its sequential structure is primarily teacher-directed and offers limited opportunities for children to develop self-regulation, the essence of social constructivism. Even though the learning goals may be very clear, and set into a sequential approach, whole-class teaching results in activities being offered that mostly fail to tap into children's intrinsic motivation, because they cannot authentically meet the needs and interests of all children at once. When this intrinsic motivation is missing, there is a danger that learning becomes uninteresting and artificial for children; early years teachers understand young children’s need to seek a meaningful context for learning, so when they are having to provide learning activities which are decontextualised, it goes ‘against the grain’ for many.

It seemed to many educationalists that a positive step forward was being taken when, in 2000 the English government introduced a Foundation Stage of early learning, with the publishing of Curriculum Guidance for the Foundation Stage by the Department for Education and Employment and the establishment of the Qualifications and Curriculum Authority (QCA, 2000). The Foundation Stage was a new phase of education for children aged 3 to the end of their Reception year when they would be five, rising six and the particular significance of the implementation of this new phase was that both researchers and practitioners were involved in its conception, so at the heart of the curriculum sat the pedagogy and model of *play*. Further positive signs were seen in the provision of curriculum guidance which was intended ‘to help practitioners plan to meet the diverse needs of all children so that most achieve and some, where appropriate, will go beyond the early learning goals by the end of the foundation stage’ (p. 5) and the abandoning of Baseline Assessment in 2002. However, although the Curriculum Guidance for the Foundation Stage sought to shift emphasis towards a more child-centred approach, the framework has been seen as overly prescriptive in terms of identifying outcomes for children and as introducing a more formal approach to learning in the early years (Kwon, 2002). Soler and Miller (2003: p.62) comment that although the Foundation Stage Curriculum was meant to be inclusive, in fact: ‘such a model can be seen to prioritise competitiveness. It supports the notion that the main goal is to support those who can succeed and reach skills-based attainment targets rather than cater for individuality and access for all children’. The introduction of curriculum guidance for the Foundation Stage, combined with the statutory inspection process, appears to have had a strong influence on preschool education in England and although there has been ongoing debate about their appropriateness, the Early Learning Goals have been widely established as the basis for activity in preschool settings within England.

With the re-emergence of the old contradictions in recent government documentation (e.g. *The Early Years: Foundations for Life, Health and Learning,* Tickell, 2011, and *Early Intervention: The Next Steps,* Allen, 2011), the tension is again mounting amongst early years educationalists, who find themselves in a dilemma once more, being told in the Statutory Framework (2011) that ‘planned purposeful play’ (p.10) and letting themselves ‘be guided by the different ways that children learn’ are the appropriate methods to ‘ready’ children in preparation for a system of schooling and curricula in which they have little or no faith.

In the following section, the philosophical and psychological bases for the UK early years pedagogy are explored, in order to further illuminate the conceptual gaps between the perspectives of the policy-makers and the policy-activators over recent years.

**1.5 Early Years pedagogy**

Professionals working with young children in the UK today have deep experience and understanding of the importance of the social contexts within which children learn, holding that their development is the outcome of opportunities provided by specific relationships and environments in which the child constructs their own understandings. This approach, *socio-constructivism* (Vygotsky, 1978), for which there is now overwhelming empirical evidence, has emerged as the dominant explanation for human development and learning and formed the bedrock of pedagogy development for children’s early years within the UK as in many other countries. Such pedagogies are characterised by the belief that self-learning comes about through exploration, interaction and reflection; these key elements of the learning process evolve from the children’s critical curiosity within a co-operative learning framework. Approaches to early years curricula and models of early learning are discussed in detail within section 2.4 of this paper.

At the heart of the approach is *social constructivism*, the central idea in Vygotsky’s (1978) model of children’s learning which holds that it is essentially a social activity. Initially all learning comes about at an ‘inter-mental’ level, as a result of experiences of joint attention and inter-subjectivity with others in the form of spoken language, and then later, at an ‘intra-mental’ level, within the child’s mind, in the form of internal language, or thought. Development, or ‘progress’ comes about through the child facing challenging tasks or problems, in relation to which they could operate at one level by themselves (described as their 'level of *actual* development') but achieving at a higher level, when supported by an adult or more experienced other (described as their 'level of *potential* or *proximal* development'). The realisation of the importance of contextual and cultural influences in children’s development resulted in acknowledgement of the need for a pedagogical approach which considered *development as a social construct*, necessarily adapted to time, place and culture, varying according to class, gender and other socio-economic conditions (Dahlberg, 1999: p.49). Hence the focus within early years pedagogy development, upon the environments in which young children’s development occurs. Rogoff (1998) for example, suggested that all children’s cognitive development is related to the context in which it takes place and is brought to fruition by children’s participation in the context itself; this view of development suggests that learning occurs as children interact with their social ‘partners’ – so development is defined by the community in which it occurs.

Over the twentieth century, curriculum-building in the UK largely followed the influence of the dominant psychologists of the different decades. Initially, theories of direct instruction prevailed, in which it was assumed that children learned what they were taught, and were subjected to didactic teaching methods emphasising memorisation, drill and practice to achieve general cognitive gains (Bowman, *et al*, 2001). Then the *cognitive constructivist* viewpoint of Piaget became woven into pedagogical approaches, partly influenced by a number of early years educators and theorists such as Montessori, for example. As illustrated in section 2.4 Figure 1 ‘constructivism’ held that children’s learning is an active process through which they attempt to develop their skills and construct their own understandings of the world and in which the adult’s role is to provide the environment in which this exploration and construction of learning can take place, but not to interfere with the process. In many ways, educationalists’ interest in *constructivism* can be seen as a direct rejection of the then-dominant ‘direct instruction’ model of learning, in which the act of learning was portrayed as a passive transmission of information from teacher to learner, to be remembered upon cue – and the consequent behaviour of the learner as simply a 'response' to a 'stimulus' or a reward. Piaget’s *cognitive constructivist* interpretation of the learning process was perceived to be refreshingly ‘dynamic’ in contrast to this didactic teaching approach; the learner actively perceives and selects the information they are seeking, the information is sifted, categorised and re-organised, patterns are detected and rules, 'schema' or concepts are constructed. The learner’s behaviour and actions are dependent upon their own hypotheses and predictions about the way the world works and the consequent strategies and plans they develop to act effectively upon it.

However, although Piaget’s model was initially welcomed for its recognition of the essentially ‘active’ nature of learning, its adherence to set ‘stages’ of development, and the notion that development precedes learning, were challenged and ultimately rejected by educationalists. Criticisms of Piaget’s work stem from his under-estimation of the cultural nature of learning and the important role of social interaction and language in children’s developing abilities as learners (Dahlberg, 1999; Edwards and Fleer, 2003). The influence of ‘constructivism’ lingered on however; indeed, within much of the early years curriculum literature of the 1980’s and 1990’s, the focus still harks back to ‘developmentally appropriate’ practice and environments, for which ‘a series of behaviours, activities and materials’ (Bredekamp, 1987: p.3) were identified as being appropriate for children at particular stages of development. As discussed in detail in section 2.4, advances in developmental psychology and cognitive neuroscience, within the past decade in particular, have shed light upon the validity of Piaget’s understandings of the active nature of young children’s learning, at the same time as they have shown his conceptualisation of developmental ‘stages’ to be flawed.

*Socio-constructivism* has evolved naturally within the practice of many European countries over time, in the Nordic countries and in the Reggio Emilia schools of Italy for example, and is based upon a common desire to establish early learning experiences for young children which encourage lifelong values, such as a sense of community, in tandem with a commitment to the rights of the individual, as well as the development of critical thinking abilities. This has resulted in a form of pedagogy that draws on many established theories of learning and development, including those expressed by Piaget, Vygotsky, Bruner and Dewey (Edwards, 2003: p.261). This system of relationships between ideas, children and their socio-cultural partners may be considered as representative of a view of early childhood education that echoes elements of developmental constructivism whilst emphasising simultaneously the social origins of learning and development (New, 1998: p.277).

To various degrees, the need for some structuring and orientation of children’s experience towards educational aims in the form of a curriculum has been generally accepted in most countries of the world. As a consequence, documents are in place to guide most early childhood services, usually for children from the ages of four- to six-years (UNESCO, 2000). The domains of knowledge generally considered to be important include: general knowledge, nature and the environment, emergent literacy and numeracy and scientific concepts and reasoning. There is however, a significant difference in the way that countries with an embedded social constructivist approach to early years *interpret the implementation* of their curriculum guidance. From the perspective of early years educationalists, the significance of curricula and pedagogy pivots upon not simply *what* learning opportunities are offered within a curriculum for young children, but *how* they are offered. According to the Starting Strong II Report (OECD, 2006), in countries in which early education is closely associated with primary school the tendency seems to be an early formalisation of the content and methodology of numeracy and literacy and to approach them from an academic perspective in preparation for the demands of the first year in school. In contrast, in those countries with an established socio-constructivist tradition, although there is evidently a high value placed upon emergent literacy and numeracy, pre-schools seek to maintain an open and holistic curriculum until children enter school (and sometimes, until well into the early classes of primary school).

Within the socio-constructivist approach, the child’s self-regulation is the ultimate goal; all developmental areas are addressed through play and broad project work that encourage active learning and multiple experiences in the major developmental domains. With the help of experienced teachers (and parents and older peers), young children choose their activities and organise their projects, which naturally requires self-regulation of cognition, motivation, social skills and emotions. Teachers make the most of authentic opportunities to challenge and extend (‘scaffold’) the learning through support of the children’s project work, ensuring that learning experiences are relevant and meaningful.

*The Early Years Foundation Stage; a genuine commitment to socio-constructivism?*

In many ways, the EYFS documents endorse and promote the socio-constructivist principles which early years educationalists uphold. Few would quibble with the four guiding themes shaping the requirements of the EYFS, which are intended to inform practice in early years settings, namely, that every child is a unique child, who begins learning at birth and can become resilient, capable, confident and self-assured; that children learn to be strong and independent through positive relationships with their parents and carers and with others; that a positive environment is crucial if children are to fulfil their potential and learn and develop well; that children’s experiences are planned to reflect their needs, and help build their confidence; that there is a strong partnership between early years practitioners, parents and other professionals; and that children develop and learn in different ways and at different rates. There is an explicit recognition that all areas of learning and development are important and are inter-connected and in the Tickell review’s Report on the Evidence (2011: p.21), there is specific acknowledgement of the importance of play to early years practitioners;

Responses to the review suggest that practitioners across most settings welcome the role of play in the EYFS, and the balance between adult-guided or directed and child-initiated activities. This was supported by research, which found that all practitioner groups welcome the play-based and child-initiated nature of the EYFS, and view it as a validation of established early years principles. Support for the role of play, creativity and exploration was confirmed by the review team’s visits to schools, and by responses from a number of organisations. Parents and carers of children under 5 also agree with this approach, and of those surveyed by the National Children’s Bureau, nearly all (97.5%) agreed that young children learnt best through play. (The Early Years Foundation Stage (EYFS) Review Report on the Evidence, 2011: p.21 section 3.1)

Yet, there is a real danger that the frequent emphasis upon ‘preparation for school’ within those same documents will undermine the ‘life readiness’ approach that true socio-constructivism proclaims, when teachers are translating guidance into practice, particularly within Reception classrooms. In reality, the practice that the EYFS Statutory Framework engenders underestimates the function of early childhood education, as conceptualised within socio-constructivism. In comparison to the pedagogy behind approaches to early childhood curricula such as those in the Nordic countries and the Reggio Emilia programmes, for example, based on supporting children’s learning for life and supporting holistic development in the domains of physical, emotional, social and conceptual learning, the focus upon ‘school readiness’ within the EYFS undermines the principles of social constructivism.

**1.6 The dilemma facing early years educationalists**

In essence then, since the mid-1990s, there has been a growing perception on the part of many educationalists that a ‘deficit model’ exists in the early years schooling system within England. They hold that the primary school curriculum and testing system is inordinately focussed on a narrow range of cognitive skills, placing unreasonable – and inappropriate – demands upon the children within KS1 at the expense of other social and emotional learning. The focus upon a child’s ‘readiness’ for a prescribed diet of cognitive skills and knowledge is unbalanced and costly in terms of the lost opportunities at crucial points within childhood for learning which is more appropriate in terms of content and methodology. Although a cognitive-heavy diet is arguably short-sighted at any stage of schooling, it is *particularly* inappropriate with regard to *young* children’s education, at a time when investment in social and emotional learning is essential to pave the way for future development. Early years educators understand that when issues of ‘what’ children are ready to learn are considered, it is important to take into account the fact that young children’s capacities to make meaning of their experiences, to represent and to acquire language for example, are still emerging. Thus the importance of the *ways* in which children learn have come to the foreground in early years curriculum design and in particular, researchers suggest that methods such as *play* should be a central ingredient in learning, enabling children to practice gross and fine motor skills, imitate adult behaviours, process emotional episodes and learn about their world. Both free play and directed play are crucial for the development of academic skills and both types feature within most early childhood pedagogies around the world, as discussed in section 2.4.

For many children, the transition and adjustment to school will pose relatively few negative challenges. Changes of environment, friendships, teaching style, environment and new learning itself, although intense and demanding, will also be exciting and rewarding for many children. In the main, these are the children who share the set of codes, language and cultural resources valued in mainstream education. However, for children with *different* codes, languages and cultural resources, the transition and adjustment to school may pose negative challenges. These children, though adept in many ways, can find the transition to school enormously difficult because in essence, their ‘readiness for school’ is measured against a one-size-fits-all model – and many will be found wanting. For example, many children, who speak fluently in their first language and enjoy early literacy activities at home, may have to face being labelled as ‘deficient’ in English. Others, who may be used to a high degree of self-regulation in selecting and carrying out what they want to do, may be labelled ‘hyperactive’ as they move out of an environment of autonomy into one of conformity, teacher-dependency, lack of choice and explanatory discourse (Fortune-Wood 2002). The diversity of children’s backgrounds before starting school, is discussed in section 2.2 of this report.

In section 2 (d) of this review, self-determination theory (SDT; Ryan and Deci, 2007), is used as a lens through which to highlight some of the domains in which children from a range of backgrounds, and with a diverse range of early childhood experiences, face challenges in starting and settling into school. Arguably, the curriculum-centred approach evident in many Key Stage 1 classrooms leaves little room for children’s individual differences – thereby leading to a situation where their basic needs, as defined by self-determination theory, of autonomy, competence and relatedness, are not being met. In addition, goal theory is used to explore how features of instructional interactions might be a central source for understanding relationships among classroom values, beliefs, and practices that help to regulate affect, cognition, and motivation in classrooms (e.g. Turner, *et al*, 2002). For example, Zimmermann (2000) illustrates that some learning environments not allowing children adequate latitude in choice of activities, severely restrict the extent to which the children’s personal goals can steer and direct their self-regulation processes. Hickey and Granade (2004) suggest that the values and goals which support children’s engagement or disengagement in different learning contexts have a reciprocal relationship with the contexts within which they are situated to learn. A complementary model is discussed, resulting from the extensive work of McCaslin (e.g. McCaslin, and Hickey, 2001) in relation to children’s motivation and identity in classrooms. McCaslin argues that children appear to grapple with two basic questions in understanding the purpose of school and their place in it: (a) ‘What is learning?’ And (b) ‘Am I welcome here?’ Children’s implicit answers to each question illustrate the forces – the personal struggles and negotiations of social opportunities and relationships within a sociocultural institution – that are part of their everyday schooling. She describes a model of co-regulation in which teachers (and parents) are encouraged to structure relationships and opportunities in classrooms to facilitate children’s internalisation of social supports and promote what she calls ‘adaptive learning’ (based on a model of Vygotsky’s ZPD). *Adaptive learning* promotes the internalisation of goals, the motivation to commit, challenge or reform them, and the competence to enact and evaluate those commitments. Available opportunities and relationships in the social realm shape the activities in which children engage and their adaptive learning; children’s adaptive learning is influenced in part by their readiness and dispositions and in part by cultural expectations and regulations. Children who do not develop autonomy, competence and relatedness are at risk of early emotional and academic failure.

**1.7 What next for ‘school readiness’?**

The appearance of Recommendation 4, in the government document *Early Intervention: Smart Investment, Massive Savings* (Allen, 2011) gives rise to particular concern amongst educationalists, in that it proposes that a ‘school readiness’ assessment be used as an intended measure of the effectiveness of the Early Intervention programme (p.15):

I recommend that the Supporting Families in the Foundation Years statement must include regular and purposeful assessments for the 0–5s, focusing on measuring social and emotional development to enable all children to attain ‘school readiness’. I further recommend that ‘school readiness’ should be adopted as an intended outcome from Early Intervention and be used as a measure, or basket of measures, of the impact of investment and the extent of savings, and thereby as an incentive for further investment.

One relevant example of a ‘school readiness’ assessment programme for young children, from which English policy-makers might learn lessons, is that which has developed in the USA. Originally, the perception that many children were entering kindergarten without the experiences they needed to be ‘successful’ in school, had led to the creation of the Head Start program in l964 and this program, part of the War On Poverty, raised the question of the nature of appropriate learning experiences for young children who were at risk for school failure. Some educators believed that child-centred curriculum based on play would provide the needed preparation for school success while others called for a curriculum based on school-related knowledge and skills. The U.S. government sponsored research in order to assess the impact of different educational approaches on the development and learning of low-income children. Educational models were developed and research conducted to see how effective the different models were in preparing children for school success. No one approach was determined to be most effective though the studies found that a clearly defined curriculum with adequate resources and materials and well trained teachers were essential components of successful programs. There are clear parallels with the findings of the EPPE project in the UK (Sylva, *et al*, 2004).

Now, because of the current movement for educational accountability in the US as well as here in England, interest in young children’s learning has again become a national concern. Again with the focus on ‘readiness’, the onus is upon *children’s performance* – both governments are eager to intervene to determine what young children need to know and be able to do to successfully to negotiate school expectations. This new concern has led to the widespread development within the USA of *early learning standards*.

One of the first recommendations of the National Education Goals Panel (l997) was the development of content standards that would help states and school districts ensure that worthwhile subject matter was being provided. Content standards defined what knowledge, skills, and attitudes should be taught. They addressed goals and objectives for each subject area for each school year and were originally developed by professional associations that focused on a school content area (the National Council for the Social Studies, the National Council of Teachers of Mathematics, the International Reading Association, and others). States then developed their own standards, based upon national standards but tailored them to their own populations and educational priorities. Accompanying performance (or achievement) standards described how children were to be assessed in order to determine the extent to which the content has been acquired. Some form of standards is now a feature of every public school in the United States.

In recent years in particular, there has been renewed attention to the pre-school curriculum. Parents want their children to be successful when they enter kindergarten. Elementary school administrators and teachers are increasingly concerned with how children’s pre-school experiences will help them to meet kindergarten expectations. For this reason many states are developing early learning standards. Early learning standards are intended to assist pre-school teachers and administrators in shaping ‘meaningful’ and ‘well-rounded’ daily programmes for children in order to help prepare them for later school success (eg. Hawaii State Department for Education, 1999). They include examples of what most children are able to do at a particular age when exposed to ‘appropriate’ learning experiences. A 2003 position statement from the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) states that, ‘… *standards can help practitioners and policy makers create a clear focus on what is truly important in early education*…’(p. 66). They identify essential features (criteria) for developing, adopting, and using early learning standards. A survey of early learning standards (Kagan, Scott-Little and Stebbins Frelow, 2003) indicated that, in 2003, 39 states had developed, or were in the process of developing, early learning standards. These standards are intended to improve instruction in pre-school and increase the likelihood that children will be ready to do what is expected of them in Kindergarten. The majority of these standards were developed for use by state-funded early childhood programs though some are intended for community pre-schools as well. States vary greatly in the focus of their standards. Some address only literacy, or literacy and mathematics; others address all domains of development. They also vary in the extent to which use of the standards is mandatory and in which settings they are required. Authors of the survey caution that early care and education professionals and policy makers must work together to ensure the effective development and use of standards so that they lead to positive outcomes for children. The impact of the instigation of these early learning standards upon teachers and parents’ decisions relating to children starting school in many US states, are discussed in part 2.3.

On the surface, it appears that it should be quite simple to identify the characteristics of a child who is ‘ready for school’ and then to assess whether or not any given child has these characteristics. But, as has become clear, ‘readiness’ is a difficult construct and one that continues to be debated. Assessment of readiness is even more challenging. Policies linked with *Supporting Families in the Foundation Years* (DfE, 2011) have contributed to bringing the issues of ‘school readiness’ and assessment of school readiness to the forefront in England. A variety of concerns continue to surround the topic of assessing school readiness. These include (a) the ability of educators, parents, administrators and policy makers to articulate an agreed-upon definition of ‘readiness’ (b) coming to an understanding and agreement on appropriate and ethical methods of assessing readiness, and (c) agreement as to how the information gained will be used.

Readiness tests have some important limitations of which policy makers should be aware.

* First, since assessment tools are designed for specific purposes and should not be used for other purposes, government must be clear about *its* purpose in ‘readiness’ assessment and choose an appropriate assessment tool; assessing the economic effectiveness of investment (‘*the impact of investment and the extent of savings, and thereby as an incentive for further investment*’ Allen, 2011 p.15) is unlikely to be appropriate through assessment tools placing the onus upon the ‘performance’ of children through measures designed to evaluate their emotional and social development (Allen, 2011 p.15).
* Second, each ‘readiness’ assessment tool will be designed with an explicit or implicit definition of ‘school readiness’ and therefore, in aiming to assess children, policy-makers must be clear on their *own definition* of ‘school readiness’ before they can choose an appropriate assessment tool; agreeing on a definition of ‘school readiness’ may prove to be difficult, judging by the opposing perspectives of educators and policy-makers thus far.
* Lastly, assessment tools are only as good as the individuals actually implementing the assessment and interpreting the data. Therefore, belief on the part of the implementers in the measurement tool and process is necessary in conducting any assessments if the process is to be undertaken in a valid way and if the results are to be accurate (see Maxwell and Clifford, 2004).

It is to be hoped that the Government will listen to those with experience and knowledge within the field of early years education before continuing in a vein of policy intervention, armed with inappropriate and potentially clumsy assessment instruments, imposing inappropriate processes and practices upon unwilling practitioners - the ultimate victims of which may be the most vulnerable young members of society.

Part 2

A critical review of the evidence

**Introduction**

Within this part of the report, we review the research evidence informing the debate surrounding ‘school readiness’, investigating the lively and voluminous body of research literature, which has emerged over the last decade in relation to worldwide early childhood policy and practice. Acknowledging that it is challenging to separate out the research evidence into discrete domains, but delineating them nonetheless for clarification in approach within the review, we examine the research evidence within four domains; the cognitive, physical, social and emotional aspects of young children’s development; the diversity of children’s early life experiences, including family circumstances and styles of parenting; transitions and school starting age, including the equality and diversity duties upon institutions; models of pedagogy for early childhood, including theories of learning and approaches towards early learning, encompassing the role of play.

As explained in the overall Introduction to this review, the argument in relation to school readiness is illuminated in this section in two ways. First, this review of relevant research evidence illuminates issues relating to the dangers of a ‘school readiness’ approach, incorporating an ‘earlier is better’ mind-set and an emphasis on a centrally determined curriculum, which is to be transmitted and formally assessed. Second, the review explores the guidance offered by research as to important constituents of what might be considered to be an effective ‘social pedagogy’ approach. This incorporates evidence concerning the nature of early child development and provides support for a process-orientated pedagogy which attempts to provide children with experiences likely to support their social, emotional and intellectual development. This part of the report is, therefore, divided into 4 sections, as follows:

* 1. *The cognitive, physical, social and emotional aspects of young children’s development*. Within this section, we investigate the exciting evidence revealing that even from birth, young children are much more capable than was previously understood. Such discoveries, enabled within recent decades largely due to the technological advancements within neuroscience (such as fMRi imaging techniques) and psychology (including systematic observational techniques such as habituation and eye-tracking) piece together a picture of the young child ‘set to go’ from birth onwards as an active, motivated learner. In this very early period basic ‘executive functions’ are rapidly established which support fundamental learning processes, including statistical learning, learning by imitation, learning by analogy and causal reasoning. The concept of ‘learning’ is thereby re-defined; no longer do we perceive of the child needing to be ‘taught’ in order to learn and develop, but as a being with the innate systems for self-regulation that mature over time within appropriate contexts.

*2.2 The diversity of children’s early life experiences, including family circumstances and styles of parenting*. Social contexts are crucial for ‘triggering’ the child’s natural tendencies and capacities for learning. Within this section we investigate the evidence that inadequate environments damage children’s potential development and, conversely, that advantageous contexts enhance their learning and thereby, their life chances. A key finding discussed within this section is that it is the *quality* of the social and psychological interaction (in particular the level of language) experienced by a child in their early days, rather than the physical environment per se, which influences optimal development.

* 1. *Transitions and school starting age, including the equality and diversity duties upon institutions*. Having established that many of our cognitive processes are there and fully functioning at birth, or soon afterwards, and that the massive growth in the brain’s capacities to learn arise from and are selectively adapted by the child’s early experiences, within this section we examine the influence of experience upon children as they transition into ‘school’ and their ‘schooling’ commences. Evidence is examined relating to how a range of countries and early years approaches offer teaching and learning to the youngest members of their society. The findings reveal the emergence over recent years of two broadly contrasting types of early schooling experience. The first type encompasses several approaches in which the continuing *natural unfolding* of children’s cognitive, emotional, social and physical capabilities are emphasised and enabled through certain types of pedagogy, rather than curricula. How this approach relates to children’s long term well-being and educational outcomes is evidenced within this section. The second type encompasses approaches in which the ‘curriculum’ takes precedence over the child’s individual needs and a pre-determined set of ‘standards’ is used as a measure against which the child is assessed. Again, within this section children’s long term well-being and educational outcomes are examined in relation to these types of educational approach.
	2. *Models of pedagogy for early childhood; theories of learning and approaches towards early learning, including the role of play*. Deeper understandings of children’s cognitive, metacognitive and motivational development, combined with the empirical evidence from research into the characteristics of high quality pre-school provision, enables the distillation of several key ‘ingredients’ required for an effective pedagogical model of learning and teaching in the early years, discussed in this final section. We conclude the report itself, by arguing that the provision of a mere ‘curriculum’ is inadequate for children in pre-school and primary schools’ Reception, Year 1 and 2 classes. A more holistic and balanced approach is required for young children in these crucial years of development than a blueprint of curriculum content, to be ‘transmitted’ in lessons. We argue that a ‘pedagogy’ is required, an approach that is conceptually broader than ‘curriculum’ in that it also encompasses the physical and social environments of young children, placing equal value upon their care and upbringing as well as their natural learning capabilities. We argue that the aims of such a pedagogy must be process-related as much as content-related; the supporting adults themselves need to understand the importance of young children acquiring skills and dispositions as much as knowledge - attributes which will be useful to the child in their life-long learning, not just to pass examinations. Play, we suggest, in its variety of forms, as discussed and evidenced within this section, is the natural methodology to support children’s learning and self-regulation.

In conclusion, the report finds no evidence that an ‘earlier the better’ approach is more effective, however, ‘success’ in the early years is assessed, whether in terms of academic outcomes, or more general well-being. In essence, the now considerable body research across the 4 general areas addressed in this review clearly shows that children are born with a pre-disposition to learn and the brain structures to enable speedy and efficient acquisition of knowledge and skills. They are born into social contexts that support or hinder the path towards effecting optimal development and the evidence shows that, regardless of the age for school entry, children will vary considerably in their social, emotional, and intellectual skills upon arrival. The best early support for a young child’s development, the best care that can be provided, takes into account the diversity of children’s beginnings in life and makes appropriate adjustments, rather than seeing them as ‘deficits’ in persisting to fit children into a one-size-fits-all model. What becomes clear particularly from the international evidence is that successful pedagogy is based upon the interests, experience and choices of young children within their *specific* social contexts. Sensitive practitioners, with high expectations of children, enabling safe, emotionally warm classroom environments and providing opportunities for multi-faceted play, are key to a *capability model* of child-centred pedagogy. So, the report concludes by re-defining a broadened conceptualisation of ‘school readiness,’ which regards it as a condition of schools as much as individual children. Conceptual and pragmatic changes need to be made therefore to the ‘offer’ from schools. We suggest that a much greater service would be provided to children if the focus was more on making school ready for children, than on making children ready for school.

Part 2: A Critical Review of the Evidence

**Introduction**

In contemporary developmental psychology, children's learning is seen as being limited only by their lack of experience and accumulated knowledge. Whereas former educational policy directives (e.g. Plowden Report, 1967) assumed that children only became capable of logical thought based on symbolic and abstract reasoning in adolescence, today it is accepted that all the basic forms of learning and reasoning are available from infant and toddlerhood. New environments may pose challenges in that a young child’s lack of experience makes it difficult to see the relevance and priorities of the situation and to work out the best way to proceed. When this is made clear by the context and through the guidance of significant other agents, however, children's potential for learning is phenomenal and often way beyond what was appreciated even quite recently. What develops is the child’s knowledge base, metacognition, and self-regulation. The development of language is central to the whole process; as a symbolic and abstract system, and through the channels of pretend play and the imagination, even very young children can think as effectively as adults.

Self-regulation refers to fundamental aspects of emotional, social, cognitive and motivational development and it is the basis for the development of a wide range of skills and dispositions which are very strongly associated with children becoming successful learners, and socially adept and successful adults. Within the early years of life, increasing self-awareness in the child leads to increasing control of their own mental processing, their thinking, reasoning and remembering, for example, processes which are relevant and fundamental to the whole range of the child’s development, including their emotional and social abilities.

Within this section of the report, we explore three strands. First, we investigate the emergence within young children of various processes for early learning, including ‘executive functions’, such as attention, working memory and inhibitory control. Second, we examine the essential role of language and social relations within a child’s development, revealing that it is the *quality* of early social interactions that are crucial for the laying of appropriate foundations for further learning. Third, we attempt to weave together the previous two strands, in exploring the notion of *development as ‘self-regulation*,’ conceptualising development as the child’s increasing capacity to regulate their cognitions, emotions and behaviours. Conceptualising self-regulation as adaptive control that emerges through infancy, toddlerhood and early childhood and which can be observed at the level of emotional, behavioural and social processes as much as the cognitive, focuses the lens upon the powerful learning processes at work *early* in life, enabling the mastering of basic skills in preparation for later, more sophisticated regulatory competencies.

**2.1 *What have we learned from development research?***

*The development of processes for learning*

Through a range of newly emerging technologies, such as habituation, eye-tracking, computer modelling and neuroscientific techniques, cognitive psychologists, over the last 30 years or so, have revealed an impressive range of processes by which the human brain learns. In parallel, increasingly sophisticated technologies for observation have been developed, enabling the systematic gathering of psychological data relating to young children’s behaviours and actions, and enabling complex analysis of resultant patterns and tendencies. Until recently, developmental psychology and neurobiology were studied in parallel. Whereas the former is concerned with the observation and measurement of behaviour, cognition, and emotion, the latter is concerned with the study of cellular, neurophysiological, and biochemical processes in the brain and the autonomic nervous system. It is now increasingly possible to study *simultaneously* the neurobiological processes accompanying or underlying observed behaviour, by the use of a variety of neurophysiological measures and brain-imaging techniques. These methods are enabling the apparent mind/brain dichotomy to be bridged.

Developmental cognitive neuroscience has thus established that many fundamental processes which underpin thinking, reasoning and learning are present and fully functioning at birth, or become available within the first four-to-five-years of life. During this period, the brain increases in size fourfold largely as a consequence of a rapid increase in the number of synaptic connections between neurons in the cerebral cortex. As detailed by Goswami (2008) many experiments have revealed the very early emergence of a range of basic learning processes. It seems that simple forms of the ‘building mechanisms’ of cognition are present in children soon after birth; within extremely short timespans, the processes of statistical learning, learning by imitation, learning by analogy and causal learning emerge to support cognitive development and powerfully promote rapid learning about social stimuli (such as faces, Farroni, *et al*. 2002), physical events (such as grasping actions, Tai, *et al*. 2004), and language (Dehaene-Lambertz, *et al*. 2006). In effect, the new technologies and analysis techniques have enabled a redefinition of what is understood by ‘early learning.’ Evidently the human infant emerges into the world equipped with the necessary systems for active and independent learning from the start.

*The acquisition of knowledge*

The growth of a child’s capacities to think and understand is not pre-determined by a sort of central ‘powerhouse’ in the brain which decides *what is* to be ‘known’ and *what is not*, therebysetting the child off in one particular direction or another of learning. Whilst there is no doubt that there are genetic and physiological differences between brains, evidence suggests that each child’s development and learning are highly dependent upon the type of environment they experience. What this means is that each child, each ‘thinking being’ that emerges from infancy over time, is individual and different from the next, since we all have different experiences. Indeed, the human brain is uniquely prepared to learn from early experience. While the brains of even our closest animal relatives are very largely formed at birth, (e.g. the chimpanzee’s brain is 4/5ths of its full size at birth), the human brain grows in size by a factor of around four times in the first five- to six-years of life. During this period there is massive growth in connections between neurons in the cerebral cortex, and these connections arise from and are selectively adapted by the child’s early experiences.

As the child interacts within their environment in their daily lives, they witness the dynamic inter-relations between people and objects around them and they try to make sense of it all through constructing a series of causal explanatory frameworks about the structure and action of the things they perceive. An intrinsic and active desire to understand their environment, to be in active control of their own experiences, and to make relationships with other children and adults leads to an accumulation of knowledge about the causes and effects of what is perceived around them and forms the basis of their ‘cognition’ - simple knowledge in the domains of physics, psychology and biology. Physical interaction and movement within their world is a critical part of a child’s knowledge construction; sensory-motor representations are enhanced by knowledge gained through the child’s interaction with the environment through language, through play and through appropriate teaching, accumulating in ‘cognition’. Reliable information about the structure and action of physical objects and systems stems from a child’s perceptions of objects and events (naïve physics); from their observations that some entities can change shape, colour or form and act by themselves (naïve biology) and from their experience of the mental states of others (naïve psychology). However, young children then go beyond the perceptual learning of information to construct causal explanatory frameworks concerning the structure and functions of these physical, biological and psychological systems, in their search for further features that make category members similar or different. Thus, young children’s fundamental assumptions about the structure of their world and about the underlying nature of its categories, crucially depend on their *experience*.

*Inductive learning*

A process that seems to be present from birth, referred to as statistical or *inductive learning*, is the process by which patterns and regularities in the stream of experience are identified. Inductive learning underpins the ways in which the human visual and auditory systems learn and hence is fundamental to a very large proportion of human learning, explaining how young children learn language with such rapidity and ease, how they form concepts and detect categories from their experience, and how they seem so ready and able to understand causal relationships between events.

Researchers have used ‘habituation’ (and ‘dishabituation’) procedures in the laboratory to study the perceptual and cognitive capabilities of human infants. To start with, when a visual stimulus is presented to a baby, they tend to stare at it, and even move their head/eyes in order to locate it. After a period of time during which the baby becomes used to being presented with the stimulus, they tend to stop performing the same ‘looking behaviour’ – but when a change is introduced to the stimulus (or a new stimulus is introduced) the ‘looking behaviour’ returns. Using such habituation techniques, researchers have shown that, for example, babies as young as two-months-old can learn complex sequence patterns in a series of shapes they are shown, and will subsequently show a preference for ‘new’ patterns which are made up of the same shapes but are shown in a different sequences (Kirkham, *et al*, 2002). The patterns used, to a great extent, mirror those found, for example, in language, involving ‘transitional probabilities’ of one shape following another, rather than just fixed sequences. This capacity is available to the baby very early in life - two month olds were just as proficient at this as babies 6 months older. It seems that infants are just as capable of detecting similarities and differences within the auditory domain; Kuhl (2004) has shown that infants track statistical dependencies and construct conditional probabilities between sound elements, using this auditory perceptual information to construct ‘prototype’ patterns of sounds (Kuhl, 2004). It is important to note that such ‘perceptual learning’ depends upon social interaction; such statistical learning occurs only in the context of joint interactions with caretakers. Interestingly, infants do not learn language from watching videoed images or television (Kuhl, *et al*. 2003). Neuroscientific work on memory has led to our understanding of how we come to find meaning in experiences and remember it. It seems that as we undergo perceptual experiences and learn from them through making inductions, the patterns take on a physical form and become embodied in networks of interconnected neurons in our cerebral cortex.

*Learning by analogy*

Once a child has actively constructed patterns from their experience via inductive reasoning processes such as those described above, they start to apply the patterns identified and learnt in the first context to make sense of a new experience or new information related to a separate context. This capacity to transfer learning, or ‘generalise’ from one situation to another, explains how children adapt to new situations, and start to tackle new challenges and problems. A study by Chen and Siegler (2000) applied to 1.5-2.5 year old toddlers a type of process analysis that had proved fruitful in studies of older children’s problem solving and learning. The analysis revealed that the process of learning in toddlers closely resembled that of older children. Toddlers use multiple strategies over the course of learning; their choices among strategies are quite adaptive from early on; their choices become progressively more adaptive as they gain experience with the task; they switch strategies not only from trial to trial but within a single trial; their transfer of learning from one problem to the next is primarily influenced by structural relations between problems but also is influenced by superficial features; they show utilization deficiencies early in learning that they gradually overcome; and they show individual differences in learning that fall into a few qualitatively distinct categories. Perhaps most strikingly, the 1.5- and 2.5-year-olds emerged as active learners, who continued to work out the lessons of previous instruction in the absence of further instruction. In other words, they integrated the lessons of their own problem-solving efforts with the previous instruction in ways that magnified the initial effects of the instruction.

*Learning by imitation*

Young children are also adept at learning through imitation from a very early age. Since the late 1970s, Meltzoff and colleagues have been investigating evidence of infants (some only a few days old) imitating both facial and manual gestures, highlighting the physical and neural activity involved in even simple imitation. For a very young baby to be able to observe an adult performing an action, and then to be able to recognise which parts of its own body are equivalent, and, within its own immature motor cortex, to organise itself to perform the same action, shows a level of cortical organisation from birth which was not recognised until very recently indeed. There is now some fairly strong evidence to suggest that this is achieved by what has been termed the ‘mirror neuron’ system (Rizzolatti and Craighero, 2004); the same neurons fire both when another person is observed performing a particular action as when the action is performed by the self. This system seems to underpin imitative behaviours, but also, is instrumental in relation to understanding others’ minds and intentions, and to empathetic responses to others’ emotional states. Meltzoff and Decety (2003) propose that, through imitating others, human infants come to understand that others not only share behavioural states, but are ‘like me’ in deeper ways as well, which propels the human infant along the developmental trajectory of developing an understanding of other minds. In humans, furthermore, it is enormously enhanced as a tool for learning by the ability for imitation which is not only immediate (i.e. carried out while the to-be-copied behaviour is still perceptually available) but also *deferred* (i.e. performed on a subsequent occasion). Deferred imitation appears to be unique to humans since, of course, it crucially depends upon the ability to mentally represent objects and events in memory. This ability again appears to be present from a surprisingly early age, and to develop rapidly in very young children. In previous work, Meltzoff (1988) identified deferred imitation in children as young as 9 months old. At this age he demonstrated that they could reproduce novel actions they had observed up to 24 hours later (when presented with the same toy), but later work has shown that by 18 months this is up to two weeks, and by 24 months children are capable of showing deferred imitation after delays of 2-4 months. These are enormously valuable findings which inform our understanding of the development of young children’s representational abilities, and their ability to hold mental representations in long-term memory.

*Cognitive control processes; executive functions*

The cognitive control functions needed for concentration and thinking and for controlling initial impulses are called *executive functions* within the psychology literature. Core executive functions include cognitive flexibility, inhibition (self-control, self-regulation), and working memory (Miyake et al., 2000) and it is the development of these fundamental aspects of brain growth which underpin children’s abilities in problem-solving, reasoning, and planning. As the definition implies, these functions are particularly critical when solving novel problems; research indicates that the most important function of the prefrontal cortex is in regulating perception, thought, and behaviour through the activation and inhibition of other brain areas (Knight and Stuss, 2002; Shallice, 2001). During infancy and the preschool period, core components of executive function develop, forming a critical foundation that will set the stage for the development of higher cognitive processes well into adulthood.

Since executive functions have been strongly associated with the brain’s prefrontal cortex, which is one of the last brain areas to develop (Benes, 2001) for a long time it was thought that executive functioning could only developed in adolescence – however, recent work has shown that it develops much earlier and can be assessed at preschool age (e.g., Carlson, Moses and Claxton, 2004; Diamond, *et al*, 2007; Zelazo, *et al*, 2003) or even toddlerhood (Carlson, 2005; Hughes and Ensor, 2005). In fact, some aspects of executive functioning probably emerge as early as the end of the first year of life and individual differences assessed in toddlerhood are moderately stable into the preschool years (Carlson et al., 2004; Hughes and Ensor, 2006). A major review by Nancy Garon and colleagues (2008) suggests that skills underlying executive function develop hierarchically, with two main stages of development. Before three-years of age, basic skills needed for component executive functions emerge, whereas development after age three appears to be an integrative period in which basic skills become coordinated.

Barkley synthesized several models of frontal lobe functioning some time ago (1996) and proposed a model of five executive functions together comprising a comprehensive and *integrated self-regulatory system*. These five components, which clearly contain cognitive and affective elements, are outlined below.

**Inhibitory control** is defined as the capacity to plan, to effortfully control impulses and to suppress inappropriate behaviours (Rothbart, *et al*., 1994). Within the last decade, there has been much developmental research into cognitive flexibility, including inhibitory control (e.g. Kochanska, *et al,* 2008; Zelazo, *et al*. 2003). Two types of tasks have been used to measure inhibitory control in young children (Carlson and Moses, 2001). One requires children to delay gratification of a desire, by suppressing a ‘prepotent’ response and the second requires children to respond in a manner that goes against a more dominant response. Performance in both types of inhibitory control task improves with age.

**Working memory**, which allows the recall of past events and planning for the future, is the system for short-term retention of both visual and phonological information and it is important for the development of metacognition and the development of reading. Working memory constitutes a space of limited capacity which can hold information on a temporary basis while it is processed for use in other cognitive tasks, such as reasoning, comprehension and learning (Gathercole, *et al*, 2004). Research has shown that the volume of material that can be stored temporarily in the speech-based working memory system increases with age, although the capacity of the system is also affected by factors such as word length, the rate of articulation and the potential for confusion between sounds, making it difficult to retain words that sound similar.

**Internalised speech** allows for self-regulated, conscious functioning on current tasks. Language starts off as being a tool for social interaction but through development, the child comes to guide their own behaviour by using language in self-talk, or as a tool for ‘thinking out loud.’ Initially, self-talk is still a tool of social interaction, used in the company of others and it tapers to negligible levels when the child is alone. However, it gradually becomes a tool for directing and regulating the child’s own behaviour as their speech becomes increasingly internalised and metamorphoses into thought. In its mature form, inner speech probably does not resemble externally-spoken language (in particular, being greatly compressed) and is probably unintelligible to anyone except the thinker.

**Motivational appraisal** allows constraints to be placed on decision-making by emotions and motivation. Underpinning the employment of cognitive skill and the application of metacognition within any educational context is the child’s motivation, confidence and self-regulation. The child’s beliefs about the value of the activity or task, their emotional response to it (e.g. any feelings of difficulty), their level of interest and its relevance to them on a personal level, as well as the reasons they attribute to previous success and failure on similar tasks will all affect ‘goal-orientation’ (Pintrich, 2000) and thus their metacognitive performance. The relationships between cognitive and motivational aspects of self-regulation have become a strong element of recent research. Schunk and Zimmerman’s (2008) edited collection contains reviews of much of the significant work in this area. This includes work related to ‘self-efficacy’ (Bandura, 2001), children’s belief that they can improve their abilities through effort, leading to a ‘mastery’ orientation rather than to ‘learned helplessness’, to interest (Dweck, 2000), leading to engagement and involvement, and to ‘self-determination’ (Ryan and Deci, 2000). The latter suggests that the satisfaction of children’s needs for feelings of competence, autonomy and ‘relatedness’ – in other words, positive social relationships – crucially impact on their ability to take command of their own motivations and regulation.

 ‘**Reconstitution**’ or **behavioural appraisal**, enables the analysis and re-organisation of behaviour. The controlling of arousal, the expression of emotion and the appraisal of associated behaviours constitute an important part of self-regulated functioning by young children and a large body of research has related emotion regulation to social competence (e.g. Eisenberg, *et al*, 2002).

Each of these components of frontal lobe functioning clearly relates to theoretical constructs identified within the developmental psychology literature. This concurrence of psychological and neuroscientific evidence engenders confidence in the validity of the self-regulation model.

**Learning through social interaction**

*Children constructing their own learning*

Vygotsky’s (1978) model of human development and learning, *socio-constructivism*, for which there is now copious empirical evidence, is characterised by the belief that self-learning comes about through exploration, interaction and reflection, key elements of the learning process evolving from the child’s critical curiosity within a co-operative learning framework. Initially all learning comes about at an ‘inter-mental’ level, as a result of experiences of joint attention and inter-subjectivity with others in the form of spoken language, and then later, at an ‘intra-mental’ level, within the child’s mind, in the form of internal language, or thought. Development, or ‘progress’ comes about through the child facing challenging tasks or problems, in relation to which they could operate at one level by themselves (described as their 'level of *actual* development') but achieving at a higher level, when supported by an adult or more experienced other (described as their 'level of *potential* or *proximal* development').

*Early social interaction*

Infants reveal a very early predisposition and ability to interact with others, matched by a powerful tendency in adults to interact with and to read meaning into the behaviours, actions and vocalisations of babies. Trevarthen and Aiken (2001) have documented these tendencies over many years, producing detailed video analysis of mother and child interactions which have revealed what Trevarthen characterises as ‘proto-conversations’ within which the early emergence of children’s abilities to derive meaning through interaction, or ‘inter-subjectivity’ is established.

The creation of ‘mutual’ attention is clearly a key element in these early communicative episodes. It seems that this develops within the first two years of life, as the growing child develops the ability for ‘shared’ attention, i.e. the ability to jointly attend, with an adult, to an external object or event. This most obviously emerges initially through the understanding and use of the pointing gesture. By 10-12 months infants typically point to objects of interest which are out of reach and, shortly afterwards, they acquire the ability to locate objects pointed out to them by others (Tomasello, *et al*, 2007). During the second year of life, children gradually acquire the ability to establish joint attention by following an adult’s gaze. Once again, the predisposition of adults to support this development, by closely monitoring the infant’s gaze, looking in the direction of their gaze, and using this focus of attention as the basis for further interaction (e.g. by naming the object, commenting upon it, or obtaining it for the child) has been documented in detail (e.g. Butterworth, 2003). Extensive studies of such adult-child interactions, however, have shown that, while there is a general tendency to support infants’ early attempts to communicate, adults’ sensitivity and style of communication varies widely, and these variations are clearly associated with differences in how children go on to learn, and particularly in relation to how they go on to learn language (e.g. Mundy and Sigman, 2006).

*The learning of language for learning*

Vygotsky (1986) detailed several ways in which language becomes an increasingly important modulator of self-regulation of both action and thought during the early years. The capacities of the brain to refer backwards into memory and to project forwards in time are developed through language in tandem with the child’s increasing ability to mentally ‘represent’ thought though words. During these years also, being able to vocalise thought enables a child to separate out the emotions experienced during an ‘event’ from their cognitive understanding of the factual content of it.

The processes of statistical or inductive learning, described above, are active as the child proceeds through toddlerhood – processes which crucially depend upon motivating and stimulating social interactions as the child starts to acquire phonological aspects of language. In the sense-making episodes of everyday life, the young child encounters *words* being linked to their *perceptual experiences* of events, objects and actions by carers, who talk to babies before they can talk back, name the objects that are being used and comment upon the child’s behaviour and shared activities. Hence initially words feature as conceptual representations and thereby precede language development. Knowledge of words is important for cognitive development because they constitute symbols; a word represents an object or an action, but it is not the object or the event itself. The appearance of gesture in language acquisition is significant, in that it creates a bridge for the child from non-verbal communication to speech and between comprehension of words and their actual production (Garber and Goldin-Meadow, 2002). Gesture is produced by a child to express meaning before they are able to produce language in development and constitutes the child’s understanding of the use of action symbols.

Research back in the mid 1990s revealed that vocabulary development increases exponentially in early childhood; on average 6000 words are spoken by the age of 6 years (Fenson, *et al*. 1994) and comprehension vocabulary at this age is around 14,000 words (Dollaghan, 1994), although the developmental range is very wide. At around the age of two, children seem to develop the capacity to learning new words very quickly; Carey (1978) refers to this as ‘fast mapping’ and initially it was thought that this capacity to learn was a dedicated mechanism for learning language. It has since been revealed that it is not specifically limited to language, nor just to humans (see Kaminski, *et al.* 2004), but rather, children acquire new words through the use of a combination of the context in which new words are encountered and their position in a sentence to eliminate alternative meanings for words.

Debates have continued regarding the learning of grammar; Tomasello (2001) has suggested that grammatical development depends on children randomly encountering appropriate grammatical forms in the course of everyday life and then reproducing these items of language which they have heard and acquired. This is in contrast to a ‘rule-based’ theory of language acquisition, such as Chomsky’s Language Acquisition Device (1957) for example, popularised by Pinker (1994), which claims that linguistic capacity is innate, expressed as dedicated ‘language organs’ in the brain and that during development certain linguistic schemas come to fruition, requiring only some fine-tuning of a set parameters in order for language to be fully acquired. Tomasello *et al’s* (2005) competing socio-pragmatic theory of language acquisition, holds that the process of word learning is inherently social. It takes the form of cultural learning in which children attempt to determine the adult's intentions (including communicative intentions) as they are learning from them (Tomasello, 1999) and then build upon these piecemeal constructions by using the same pattern-finding mechanisms that underpin learning in other domains, such as statistical learning, categorisation, induction and analogy. Chouinard and Clark (2003) have proved that whereas it was previously thought that carers rarely explicitly correct children’s grammatical errors, in fact they provide quite detailed, extensive feedback, tending to reformulate incorrect utterances.

*Language and its relation to higher-level cognitive abilities*

Initially totally dependent upon care-givers to verbally label objects and provide syntax, soon the young child builds up a ‘bank’ of vocabulary and verbal expressions; up until about the age of six years, self-speech (or private speech) features heavily in a child’s mental self-regulation of activities until the point where words spoken aloud become internalised into a ‘stream of consciousness’. Through a process of having reasons, rationales, and strategies for action and thought explained to them in words by more experienced others, children seem to acquire a form of ‘self-language’ or ‘private speech’and come to use this as a technique for controlling both action and thought to reflect on the reasons and motivations for their own behaviour (Winsler and Naglieri, 2003). Researchers who emphasize how executive function skills or working memory capacity contribute to reasoning have argued that language facilitates those cognitive processes (Zelazo, 1998). Having verbal labels allows the child to keep two things in mind at once, and being able to remember verbal instructions enables staying on track in the task (Gordon and Olson, 1998). Language assists the young child’s developing capacities to reflect and plan by facilitating their mental consideration of alternatives before taking action. As an aid to memory, language helps the child refer backwards in time or project forwards into the future, enhancing learning from past experience for future occasions. It also facilitates the construction, reconstruction and recombination of material in memory to form new concepts, ideas and solutions to problems (Zimmerman, 2001; Zimmerman and Schunk, 2001).

As the higher level processing and control systems of the brain mature and children’s processing skills become more sophisticated and efficient, they are increasingly capable of reflection on their own thinking processes. Astington and colleagues (2005) argue that talking about the mind focuses the child’s attention on explicit mental explanations of behaviour, introducing them to a vocabulary of terms for unseen and abstract concepts such as thoughts, feeling, ideas, memories, and so forth that are inaccessible to direct observation. Recent work by Schraw and Sinatra (2004) reveals that this understanding begins to develop in early childhood; three-to-four-year olds are able to use simple verbs for mental operations correctly (e.g. knowing, learning, remembering), but more complex concepts (such as estimating, believing, predicting) are still difficult for children at age six-years. The development of conscious awareness of cognitive processing marks an important advance in cognitive control. Children can now learn to direct and monitor their learning, thinking and problem-solving activities more reliably and independently. They can become ‘responsible’ for their own learning and thinking, as well as their behaviour, in significant ways, which form the foundations for their development as self-regulating learners.

Studies which assessed the correlation between language and executive functions in preschoolers have generally found correlations between measures of executive function and verbal ability in preschool children (Blair, 2003; Carlson, *et al*, 2004; Muller, *et al*, 2005) and even in 2-year olds (Carlson, *et al*, 2004; Hughes and Ensor, 2005). Particularly striking are the high correlations between verbal ability and tasks assessing *cognitive flexibility* (Hongwanishkul, *et al*, 2005; Muller et al., 2005; Perner, *et al*, 2002), and complex *working memory* (Davis and Pratt, 1995; Keenan, 1998). Taken together, all of these findings support the notion that language and control processes are associated.

*The development of a Theory of Mind*

Both language and imaginative pretend play share the core developmental functions of enabling children to reflect upon and regulate their own cognitive behaviour, and to reflect upon and gain a deeper understanding of the mind. Imaginative play, particularly socio-dramatic play, enables the child to do so through action. During their second year of life, young children start to show signs of using their imagination through inventing pretend scenarios. Initially a two year old might pretend to eat a toy cake, by making movements with their mouth to simulate biting and chewing, and later, they might reveal more sophisticated signs of imagination, detaching the use of an object from its visual identity (e.g. using a twig as a pistol). Engaging in imaginative play is an early indication of a child’s developing awareness of their ‘cognition’ – seen in their ability to separate out aspects of their own knowledge. In order to pretend that one object is a different one within an imaginary scenario, the child must separate the *primary* representation of the object (the stick; brown, wooden with some leaves attached) from the intended imagined representation (a shiny, metal gun). The child must be able to separate out and override their knowledge of ‘stickness’ from ‘gunness’ and therefore the emergence of imaginative play signifies the beginning of a capacity to understand items of knowledge, or thoughts, as entities. The individual differences in children’s preferences for pretend play and the types of conversation in which they engage, are wide. For example children with siblings generally show earlier development of a ‘theory of mind’ (ie. an understanding that others have a mind like their own) than children without siblings (Cutting and Dunn, 2006) and having siblings has stronger effects for children with lower language abilities (Astington and Jenkins, 1995). One reason that pretend play with siblings and friends helps to develop psychological understanding is that shared pretend play makes high demands for imaginary and cooperative interaction. Shared socio-dramatic play provides a large number of opportunities for reflecting upon one’s own and others’ desires, beliefs and emotions. Interestingly, as Lillard has shown (2002), as children get older less time is spent in actual role play, and more and more time is spent in negotiating the plot and each other’s roles.

Theory of Mind (ToM) understanding is attributed to children who are able to use knowledge of their own and others’ mental states to understand others’ behaviour (Carlson, *et al*, 2004). Between the ages of 3 and 5 years, an important transition in ToM conceptualisation occurs as children begin to understand that they themselves, as well as other people, can hold and act on false beliefs (Astington, 1993; Wellman, *et al*, 2001). The finding that children’s executive functions and ToM abilities both undergo important developmental changes between the ages of three- and five-years has provided a theoretical impetus for the investigation of relations between the two constructs, leading to evidence suggesting that there is a functional relation between executive functions and ToM and establishing a clear link between verbal ability and theory of mind performance in children. Performance has been found to be significantly correlated even after controlling for age, verbal ability, and IQ in typically developing children (Carlson and Moses, 2001; Carlson, *et al*, 2002) as well as atypically developing children (Colvert, *et al*, 2002; Zelazo, *et al.* 2002; Ruffman, *et al*, 2003).

*Metacognition*

Monitoring the current state of one’s knowledge or memory, or how well an activity or strategy is working in order to achieve a goal, and making adjustments to the cognitive strategies being used in order to improve performance, is conceptualised as *metacognition.* The most familiar model of metacognitive processing is that developed by Nelson and Narens (1990), which suggests that, as mental tasks are undertaken, there are essentially a minimum of two levels upon which activity simultaneously operates. At the ‘object’ level the intended activity is worked upon, but at the same time, at the ‘meta’ level, the goal of the activity is held in mind and stored information about the activity (or similar activities by analogy) is retrieved from long-term memory derived from previous experience. At the ‘meta’ level, progress is continually compared against the desired goal, and adjustments are made to action at the object level if required. This is achieved by information flowing from the object level to the ‘meta’ level (monitoring) continuously updating the representation of progress on the task at the ‘meta’ level, and information flowing in the opposite direction (control) continuously adjusting the cognitive strategies used. Throughout development, the accumulated metacognitive knowledge derived from previous experience leads to increasingly efficient performance of this feedback loop, and ensures that cognitive effort on a familiar activity is increasingly smoothly co-ordinated, automatic and efficient. Some of this processing is conscious (mostly when novel tasks are attempted) but much metacognitive activity happens completely without conscious awareness.

Metacognition is closely related to executive function, involving the ability to monitor and control the cognitive information processing necessary to produce voluntary action. Despite their conceptual similarity, most of the research on metacognition and executive function has proceeded by relatively separate, independent channels and much of the metacognition research has focused on its development and its importance for childhood education through naturalistic studies. For example, metacognition researchers have been interested mostly in metacognitive knowledge, particularly in the area of metamemory. Studies in the 1970’s, investigating young children’s metacognition, especially in respect to memory, focussed upon their ‘deficits’ (Flavell, *et al*, 1966) – it was thought that in attempting a relatively new or novel activity, as happens frequently in the course of all young children’s learning, the necessary metacognitive activity, requiring considerable effort, may well overload the capacity of the young child’s working memory. However, following early work for example by Deloache and colleagues (1985) and Rosenbaum, *et al.* (see 2006), who demonstrated the development of error correction strategies in young children’s manipulative play from as early as 18-months, other psychologists have investigated further the metacognitive capacities of young children.

The significance of an individual’s ability to monitor and regulate their own cognitions, and to develop increasingly sophisticated metacognitive knowledge about their own capabilities about different tasks and cognitive strategies, has been demonstrated across a wide range of human development and areas of the educational curriculum. This includes, for example, reasoning and problem-solving (Kean, *et al*, 2010) mathematics (de Corte, *et al*. 2000) reading and text comprehension (Maki and McGuire 2002), memory (Reder, *et al*, 2002) and motor development (Sangster-Jokic and Whitebread, in press). It has also been well established for quite some time that children with learning difficulties commonly exhibit metacognitive deficits (Sugden, 1989).

***Self regulation***

The understandings emerging from neuroscience have supported a model that integrates emotional and cognitive aspects of self-regulation. The development of metacognitive, self-regulatory executive functions appears to be related to developments in the frontal lobes. Recent developmental neuroscience research has identified specific brain regions that may play a functional role in the deployment of attention and in the processing and regulation of emotion, cognition and behaviour, identifying areas of the pre-frontal cortex as key to the effortful regulation of behaviour through the anterior attention system. The anterior cingulate cortex guides this system and is comprised of two subsections; one guides cognitive and attentional processes and has connections to the pre-frontal cortex. The other governs emotional processes and has connections with the limbic system and peripheral autonomic, endocrine and visceromotor systems (Luu and Tucker, 2004). Recent research suggests that there is a reciprocal relationship between these two subsystems (Davidson, *et al*, 2000) and this functional relation provides a biological mechanism for the developmental integration of certain types of self-regulatory processes in childhood. It is likely that these discrete processes of self-regulation probably become so intertwined as integration occurs across levels in support of more complex skills and response behaviours, that it will be impossible to separate them out into independent types of control (see for example, Bunge, *et al*, 2002; Lamm, *et al*, 2006; Nagy, *et al*, 2004; Rueda, *et al*. 2004).

A range of empirical studies has confirmed the theoretical inter-relationships between metacognitive and emotionally and motivationally self-regulatory processes. In one study Pekrun, *et al.* (2002) explored the role of emotions in self-regulated learning. Some of the relations reported in their study showed distinctive patterns for emotions such as enjoyment and hope vs. emotions such as anxiety and boredom. Positive emotions were positively related to effort, interest, use of elaboration strategies and self-regulation and negatively related to irrelevant thinking. Negative emotions showed the opposite pattern, being negatively related to interest, effort, elaboration strategies and self-regulation and positively related to irrelevant thinking and external regulation.

As the emergence in young children of self-regulatory abilities has become increasingly acknowledged, a number of recent studies have focused specifically on the implications for early years education. Blair and Razza’s (2007) study of three-to-five-year olds from low income American families, for example, showed that aspects of self-regulation (particularly inhibitory control) predicted progress in early maths and reading abilities approximately a year later. In the work of Whitebread and colleagues (Whitebread, *et al*, 2009) metacognitive and self-regulatory behaviours in children as young as three-years have been identified within playful activities. Bronson (2000) has provided a comprehensive review of the considerable body of research cataloguing the gradual emergence and development of self-regulatory and metacognitive abilities, across the cognitive, emotional, social and motivational domains in children from birth up to the end of Primary school. Veenman, *et al*. (2005) have shown that metacognitive skilfulness makes a unique contribution to learning performance beyond that accounted for by traditionally measured intelligence.

**Conclusion**

Within this section, we have investigated how various cognitive processes emerge within the young child from birth onwards, enabling them to learn about the world and their specific environment through constructing general ideas based on their observations and experiences, making analogies through forming associations with previous knowledge and imitating others’ behaviours, for example, effective processes for early learning, and leading to the development of more sophisticated ‘executive’ functions, supporting thinking and remembering. Vygotsky’s theory of learning has been explored through the lens of empirical research evidence, a theory characterised as a process of internalisation through the early years, in which the procedures for successful approaches to tasks are initially modelled and articulated by a more experienced partner, with the child then gradually becoming able to ‘talk themselves through’ using ‘private speech’ or self-direction commentary and then eventually fully self-regulating using internal speech, or abstract thought. The essential role of language and social relations within a child’s development has been illustrated, and the importance of high *quality* early social interactions has been confirmed. Such a model of development and learning, suggesting that metacognitive and self-regulatory skills are learnt through social interaction, has been confirmed by the research literature, validating Vygotsky’s position. Further, the evidence reveals that many of the metacognitive and self-regulatory skills are highly teachable, as will be discussed in section 2.4 of this report.

Part 2.2

The diversity of children’s early life experiences

**Introduction**

As we have seen in part 2.1, self-regulation, a child’s increasing self-awareness, leading to increasing control of their own mental processing and performance, is relevant and fundamental across the whole range of development incorporating emotional experiences and social abilities, as much as cognitive processes, underlying the abilities which support learning, thinking, reasoning and remembering. Powering all this, is young children’s intrinsic and active desire to makes sense of their world, to be in active control of their own experiences, and to make relationships with other children and adults. However, since development is so integrated with social context and ‘nature’ cannot avoid being shaped by ‘nurture’, no two children will have the same combination of biological, cognitive and motivational ‘ingredients’ in their make-up.

Even by the age of four, when a child may begin in a primary school Reception class, although they may come through the gates of the institution with a brain wired up and eager to absorb masses of new information and a bank of knowledge and skills already mastered, they will have experienced a unique bundle of diverse previous opportunities, some more positive than others, which will have shaped their disposition towards future learning. There is nothing predictable or uniform about the combination of those attributes and skills with which any individual child arrives at school. Numerous indicators highlight the substantial differences in early childhood experiences across children, differences that affect their initial development and which persist as children age, influencing dispositions towards learning as well as the range of skills they will be ready to employ upon arrival in school.

Healthy child development may be supported by a variety of factors during the early years or, conversely, the desired outcomes for a child may be compromised whether temporarily or on a more long-lasting basis. Such factors include, for example, the nature of early relationships with parents and other caregivers, the extent of cognitive stimulation, and access to adequate nutrition, health care, and other resources such as a safe home and neighbourhood environment (Shonkoff and Phillips, 2000). These are discussed within this section of the report.

The make-up of society in England is extremely complex; in reality, there is no such entity as a ‘typical’ child, who experiences a ‘typical’ range of early childhood experiences. Qqqq22222qEconomic and social indicators of unemployment, ill-health, homelessness, illiteracy all reveal negative effects upon the well-being of families and the experiences of individual children. In particular, stressed parents dealing with economic and social disadvantage may be limited in their ability to provide the responsiveness and cognitively stimulating care which fosters the development of early language and cognitive skills that facilitate learning.

This section examines factors that occur in the early years that are influential upon children’s ‘state’ upon arrival at school, as well as some predictions for their outcomes in later life. Surprisingly, perhaps, the evidence shows in particular that while income has a direct effect on children’s outcomes, this effect is small when other influences are accounted for. Indeed much of the effect of income is mediated through other factors, relating to individual children themselves, such as their health and cognitive abilities, factors relating to their parents, such as quality and style of parenting, and factors relating to their environments, such as the quality of housing and neighbourhoods.

***Poverty and its relationship to physical development***

The experiences a child undergoes in the womb have an effect upon their birth and development during their early years. A healthy pregnancy - during which the mother does not smoke, drink alcohol, or take substances and during which she consumes a healthy diet and maintains good physical and mental health – is more likely to lead to a healthy birth weight which in turn contributes to the child’s chances of better health later in life (Marmott, 2010). A study by Kramer *et al.* (2000) demonstrated that women from a manual background are a third more likely to smoke during pregnancy than those from a non-manual background, with smoking having long been linked to problems during the perinatal period. Infant mortality is comparatively higher amongst children born into poverty, who are more likely to be born early and have low birth weight (Bradshaw, 2002; Duncan and Brooks-Gunn, 2000; HM Treasury, 2004) - a gap that appears to be increasing over time (Howard *et al.*, 2001). This disparity is strongly associated with the larger proportion of low birth weight infants born to low-income parents. Likewise, the child mortality rate is higher amongst children living in poverty. Poor children have a higher rate of accidents and accidental death (Bradshaw, 2000; 2001; 2002; London Child Poverty Commission, 2008) and in US-based studies have been shown to be at greater risk of physical abuse or neglect from family members (Huston, 2001).

There are differences in access to health services along socio-economic lines; relative to their needs, people in lower socioeconomic groups are less likely to use healthcare than their higher income counterparts, and that they are more likely to delay seeking treatment (Le Grand in Hirsch, 2006). These differences may impact on children’s health even before birth, with antenatal services and maternity care less accessible to women with very low incomes (Bamfield, 2007). Moreover, preventative health care does not reach all neighbourhoods, which disadvantages those mothers who miss out on opportunities for health and infant developmental screenings and through which parental behaviours can also be taught and encouraged, to promote healthy child development.

Following birth, studies of health inequality have shown that lower rates of breastfeeding and higher rates of postnatal depression occur amongst low-income mothers. Breastfeeding has long been linked to improved immunity, digestive health and better neurological development. However, a number of studies demonstrate that infants born into low-income households are less likely to be breastfed (Prince, *et al*. 2006; Nelson, 2000). The association identified between poverty and postnatal depression may, in turn, affect a new mother’s relationship with her child and ability to manage the demands of her new role as a mother (Mayhew and Bradshaw, 2005). The development of the infant’s brain is significantly influenced by the quality of ‘attachment’ to their parents; conditions such as post-natal depression can have a negative impact upon mother-child attachment and even lead to neglect. Studies of neglected children’s brains show that their brain growth is significantly reduced. Moreover, when babies are left to cry frequently, their cortisol levels rise and this can lead to a permanent increase in stress hormones later in life, damaging the child’s mental health (Perry, 2002). Indeed, a large number of studies connect growing up in a low-income household to poor mental health (Bradshaw, 2001; DCSF, 2007; Fabian Society, 2006; HM Treasury, 2008). One such study by Meltzer and colleagues (2000) highlights that children living in low-income households are nearly three times as likely to suffer mental health problems than their more affluent peers. Children’s mental health may also be put at risk by harsh and physically aggressive parenting.

Children from low-income households are more likely to experience problems with nutrition, being more likely to follow an inadequate, ‘unhealthy’ (high sugar, high sodium) diet (Bamfield, 2007; Bradshaw, 2002; Gill and Sharma, 2004; Nelson, 2000). This can have a negative influence on the mental well-being of children (Gill and Sharma, 2004) and over the longer-term can lead to childhood obesity (Bradshaw, 2002). Indeed the relationship between poverty and childhood obesity is well established; children living in disadvantaged neighbourhoods being significantly more likely to be obese than peers living in more affluent areas. Poverty is also associated with anaemia and diabetes (Duncan and Brooks-Gunn, 2000) and neuro-developmental problems (Singer, 2003). Poor dental health is also more prevalent amongst children in low-income groups (Bradshaw, 2002; Hirsch, 2006). The 2003 Survey of Children’s Dental Health showed that: ‘children in deprived schools have about 50 per cent more tooth decay than children in non-deprived schools’ (Hirsch, 2006: p.14).

Being born into certain geographical areas where high percentages of the population have income below the poverty line limits healthy development for many children. Such neighbourhoods offer limited opportunities in terms of resources important for early child development, including health facilities, parks and playgrounds (Leventhal and Brooks-Gunn, 2000). Children living in disadvantaged communities are more likely to be exposed to environmental dangers, such as crime, violence and drug misuse which have been shown to have a negative effect upon child development (Aber, *et al.* 1997). The dearth of safe places for children to play outdoors in turn promotes inactivity and contributes to problems of physical unfitness and obesity, as well as reducing the opportunity to build peer relationships. Overcrowding and living in a noisy environment have been associated with poor sleep patterns and homelessness; frequent moves and inadequate housing also contribute to poor mental health (HM Treasury, 2004). Part of the reason accidents are higher among children from low-income families is that they are more likely to live in poor housing and have fewer safe places to play (HM Treasury, 2004; 2008). However, accidents are not the only negative outcome associated with deprived housing and overcrowding. Inadequate housing is also connected to a multitude of childhood health problems including reduced resistance to respiratory infection; asthma (Bamfield, 2007); hypothermia (HM Treasury, 2004; 2008); developmental delay; skin conditions; immune system problems; depression and stress (Dowling, *et al.*, 2003; Spencer, 2000). Children living in poverty are more likely to be absent from school due to illness, to be hospitalised, to suffer long-term illness and spend more days ill in bed (Dowling, *et al.*, 2003).

Extensive research evidence has linked economic disadvantage to parental stress and inadequate responsiveness in parent-child interactions. In general, living on a low income can impair appropriate family functioning and can affect the quality of parent-child relationships (Barnardo’s, 2004; Hirsch, 2005; Russell, *et al.* 2008) and the associations between poverty, mental health and stress as well as the impact of these problems on parenting have been the focus of many studies (for example, see Duncan and Brooks-Gunn, 2000; Russell, *et al.* 2008). There has also been substantial research interest in the relationship between poverty and the intervention of child protection services and the placement of children into ‘care’ (Barth, *et al.* 2006; McGuinness and Schneider, 2007; Moraes, *et al.* 2006). For example, Barth and colleagues (2006) identified a correspondence between children being removed from their parents’ care and the household’s level of income, and Moraes and colleagues (2006) have shown an association between children living in ‘unsafe’ housing in urban areas with being removed from parental care.

***Poverty and its relationship to a child’s cognitive and behavioural development***

Economic disadvantage is linked to a range of poor cognitive outcomes in young children, including adequate language acquisition. Research focussing upon family background has consistently shown it to be the most influential predictor of later academic success (Ansalone, 2001). Differences in educational outcomes by income and background are apparent from a young age; these inequalities start early and get wider (HM Treasury, 2008). Analyses such as those of the 1970 cohort study, for example, and other longitudinal studies, reveal the negative picture that poorer children systematically achieve lower cognitive and behavioural outcomes at both age three and age five (Waldfogel and Washbrook, 2008; Hobcraft and Kiernan, 2010). Moreover, there are indications that by the age of 5 years, children from wealthier families who had low cognitive ability at 22 months had almost caught up with high ability children from poorer families (Feinstein, 2003) and that only 18% of children who were in the bottom quartile of the early development scores at age five later went on to achieve an A Level (or higher), compared to nearly 60% of those who were in the top quartile (Feinstein, 2003).

Catering to large numbers of immigrant and second-language children among the school-entry population is a reality in England that raises significant educational challenges as well as bringing many new strengths to our society. In particular, children from immigrant families are prone to being ‘at-risk’ due, on the one hand, to the difficulties experienced by their parents in finding employment and, on the other, to a weak knowledge of the host country language and culture. The probability of school failure increases when a number of at-risk factors combine. In 2007, in the introduction to their study of speech, language and communication development in Sure Start programmes, Melhuish, Belsky and Leyland reported that:

Children growing up in impoverished circumstances are generally exposed to language that differs both qualitatively and quantitatively from the experience of more fortunate children. A social class gradient in language skills is already emerging by the time a child is two-years-old and the gap widens substantially by the time children reach statutory school age. (p.2)

John Bercow’s Report (2008: p.13) on speech and language provision at the time stated that up to 50 per cent of children of some socio-economically disadvantaged populations within the UK had less developed speech, language and communication skills than their peers on entry to mainstream education. In relation particularly to England, he maintained that approximately 7 per cent of five year-olds entering school in England (nearly 40,000 children in 2007) had significant difficulties with speech and/or language and approximately 1 per cent of five year-olds entering school in England (in 2007, more than 5,500 children) had severe and complex speech, language and communication conditions. Locke and colleagues (2002) had also investigated the extent to which the spoken language skills of children reared in poverty were depressed in comparison with the general population, and in comparison with their general cognitive abilities. Anecdotal evidence from early years practitioners, suggesting that many children coming into early years education from disadvantaged socioeconomic backgrounds did not have the spoken language skills needed to develop reading and writing, was the instigation for the study. Locke, *et al*. (2002) found that the prevalence of language delay in the early years is not uniform but seemingly affects children from areas of disadvantage far more commonly than children from more advantaged socio-economic backgrounds. In assessing the spoken language skills of 240 children from four English mainstream nurseries in areas of disadvantage it was found that more than half of these children could be said to experience moderate to severe language delay and participants' language skills were also significantly depressed in comparison with their cognitive abilities. Likewise, Potter (2007) and Flores (2004) highlight a connection between disadvantage and both cognitive and language delay. In studies measuring the quality of various aspects of early childhood environments, Potter and colleagues found that a number of Sure Start settings in the north of England scored poorly on language and literacy scales (Potter, 2007; Potter and Hodgson, 2007). Dockrell, *et al.* (2008) found that speech, language and communication (SLC) progress in the early years is linked to outcomes in child cognitive ability, literacy, social and emotional development, and child behaviour. Hart and Risley’s (1995) findings highlighted that the first two and a half years are crucial for language development, contrasting the number of words heard by children of professional families (11 million words) with those heard by children of families on welfare (three million words). Such differentials were evidently still in existence in 2008, as reported by Wolf (2008); by the age of five a middle class child in England has heard 32 million words more than a child from a deprived background. The differences between families in the amount of talk to babies is significant in that those differences add up to massive advantages or disadvantages for children in language experience long before they start preschool. The potential negative impact of this upon later academic achievement is clear, given the widely accepted link between language abilities in the early years and later literacy development (Snow and Paez, 2004) ‘Literacy development and school success are most effectively promoted during the pre school period by the development of oral language skills’ (p.14).

Attending pre-school provision has been shown to influence cognitive outcomes in early childhood. The EPPE analysis reveals that the duration of early education provision in terms of the total number of years, has an independent effect; those children who attend for longer do better (Sammons, *et al*. 2004). Such effects continue long into primary school; by the age of eleven, children who attended pre-school provision performed significantly better in Key Stage 2 Maths and English, as well as on behavioural indicators. The *quality* of the pre-school provision also continues to effect Key Stage 2 attainment and behavioural outcomes (Sylva, *et al.* 2008). However, children from low-income or less educated families may be ‘doubly disadvantaged’ since they are also less likely to be enrolled in early education settings. (Meyers, *et al.* 2004). The annual report by OfSTED (2010) echoed the finding that the children who would benefit most from good quality early education and childcare are the least likely to receive it. The report notes that the quality of provision is lower in areas of high deprivation; the more deprived the area, the lower the proportion of good and outstanding providers. Indeed, just over half (52%) of childminders in the most deprived areas are good or outstanding, compared with 71% in the least deprived areas. Moreover, the ‘take-up’ of places in pre-school is lower for disadvantaged children in England. In part this reflects the expense of provision, but even take-up of the free entitlement is lower for disadvantaged children: for the 15 hours of free early education places for three or four year olds, 79% of children in families with an annual income under £10,000 receive some free entitlement, compared with 87% for all children at this age and 97% of children in families with annual income over £45,000 (Smith, *et al.* 2010). There is also evidence in the OfSTED report that in reality schools often provide poorer quality teaching to disadvantaged pupils. Reasons for this include the fact that it is harder to recruit good teachers to challenging schools in deprived areas. A downward spiral can come into play, with low ability groups receiving poorer teaching - resulting in low attainment, low expectation and poor motivation amongst children and parents (DCSF, 2009). Such evidence is confirmed by international research revealing that lower-income families spend shorter periods of time in pre-school education (Prentice, 2007), partly owing to difficulties of access and again, partly to expense. These lower participation rates have a knock-on effect on later academic attainment (Prentice, 2007). Children attending disadvantaged schools (those where 35 per cent or more pupils are entitled to free school meals) are less than half as likely as those attending more affluent schools to reach expected literacy standards at age 11 (Palmer, *et al.* 2003, in Hirsch, 2005). Studies of the relationship between poverty and education also demonstrate that children feel poverty has an effect on school life socially and academically, limiting their involvement in school activities and the local community (Meyers, *et al.* 2004). Children from low-income households both expect to receive lower quality schooling and anticipate worse educational outcomes (Horgan, 2007). Their aspirations for educational achievement appear to be influenced by the poverty experience (Attree, 2006). Many children living in low-income households miss out on opportunities (both educational and social) because their parents are unable to meet the costs of for example, uniform, school trips, musical and sports equipment and after-school clubs (Horgan, 2007). According to Hirsch (2005), children growing up in low-income households have also been shown to be more likely to require remedial help or special educational needs assistance than their more affluent peers.

*Parenting practices and parenting styles*

Parenting practices are defined as particular behaviours that parents use to socialise their children; for example, when socialising their children to succeed in school, parents might enact certain practices with them, such as doing homework with their children, providing their children with time to read and the materials with which to work and attending school functions. Constructs such as levels of parental involvement, parental monitoring and parental goals, values and aspirations in relation to their child’s education are affected by socio-economic status (SES). Parenting style, on the other hand, can be seen as the emotional climate in which a child is raised. Parenting styles have been characterised by dimensions of parental responsiveness and ‘demandingness’ (Baumrind, 1991), leading to four broad categories:

* *authoritative* (high responsiveness and high demandingness) negotiating rules and guidance, while having high expectations of the children
* *authoritarian* (low responsiveness and high demandingness): telling children exactly what to do and rigidly enforcing rules
* *indulgent* (high responsiveness and low demandingness): allowing children to do whatever they wish
* *negligent* (low responsiveness and low demandingness) disregarding the children

A wealth of research evidence has consistently found a range of positive academic and well-being outcomes being associated with an authoritative parenting style. Parenting style is largely based on the influence of one’s own parents and culture, as well as being affected by both the parents' and children's temperaments. Clearly in conditions of extreme hardship parents may have to focus upon basic priorities such as work and the provision of food. The degree to which a child's education is part of parenting is a further factor affected by SES.

Parenting is a primary mechanism through which poverty affects child development (Brody, *et al.* 2002; Gershoff, *et al.* 2007). A recent study by Blair and colleagues (2011) examined the extent to which cortisol levels in young children and the types of parenting they received would account for links between aspects of poverty and children’s cognitive ability at age 3 years. The study was based on previous work showing that early sensitive parenting is associated with a well-regulated stress physiology (Gunnar and Quevedo, 2008) and with higher level of children’s general abilities to regulate their cognitive functioning (Lugo-Gil and Tamis-LeMonda, 2008) and their emotional behaviours (Sroufe, 1996). An earlier study had demonstrated that a high level of positive parenting in infancy is associated with lower basal levels of cortisol and greater cortisol reactivity to emotional arousal at age 7 and 15 months (Blair, *et al.* 2008). The earlier study had also found that ‘resting’ levels of cortisol were increased for African American children, which probably reflected conditions of increased risk associated with these sample children’s deep poverty. Blair and colleagues (2011) examined both positive and negative aspects of parenting and demonstrated that relations between cortisol levels and cognitive ability are present even in early childhood (before the age of two-years) and that the effect of parenting on cortisol is associated with positive rather than negative aspects of parenting behaviour. Positive parenting was reduced in lower income homes and inversely related to cortisol levels over the child’s first two years. The study found that cortisol levels and both positive and negative parenting mediate associations between the conditions of poverty and child cognitive ability at age three-years.

Several studies have demonstrated that poverty is associated with increased levels in stress physiology indicators in children (Evans, 2003; Fernald and Gunnar, 2009; Lupien, *et al.* 2001) and that children’s early experience shapes their stress response systems in order to support their behaviour and cognition in the varied environments in which they find themselves. The evidence shows that certain types of *both* favourable and unfavourable environments lead to elevated stress physiology (Ellis, *et al.* 2005). In unfavourable and unsupportive environments, the increase in cortisol levels is not well regulated and stress hormones tend to remain at a high level, leading to reactive and inflexible types of behaviour and cognition in children, who become over-sensitive to and unable to cope with relatively low levels of stress. On the other hand, in favourable, supportive and structured environments, regulation of stress hormones occurs and leads to reflective and flexible forms of behaviour and cognition, supporting the development of executive functions (Blair 2010). As we have reviewed in section 2.2(a), executive functions are important building blocks for the development of children’s thinking (Zelazo, *et al.* 2003) and key contributors to the development of intelligence.

Economic disadvantage is also linked to a range of poor social-emotional outcomes in young children, including inadequate self-regulation, and inability to interact appropriately in social situations (Dearing, *et al.* 2006). A surprising, yet consistent, finding is that aggressive behaviour begins early in life and, in most children, reaches a peak at about four years of age, diminishing soon after that point. Single parenthood, divorce and reconstituted families, poverty, maternal depression, alcohol and substance abuse, all have been positively related to children’s aggressive behaviours (Pinderhughes, *et al* 2001). A study by Campbell, *et al.* (2000) highlights the fact that it is often not until entry into school that young children’s aggressive behaviour patterns become apparent, since often, until that point the behaviour is frequently explained away as being a function of such aspects as gender (e.g. ‘Boys will be boys’) or a developmental phase (e.g. ‘She’ll grow out of it in time’) or age (e.g. ‘The terrible twos’). However, the escalating evidence showing that a substantial proportion of defiant, aggressive, overactive toddlers and pre-schoolers continue to have problems at school entry flatly contradicts such folklore (McElwain, *et al.* 2002). Strikingly, recent research results reveal that about 67% of children who were rated within the clinical range of conduct disorder at age two were still there at age five and six; and almost one third of aggressive five year olds were still aggressive at 14 (Shaw, *et al.* 2000). Researchers from the Australian Institute of Criminology, investigating the antecedents of delinquency, summarised results from the Mater University Study of Pregnancy, a longitudinal study of over 5000 mothers and their children. Their results revealed that aggression at age five was a stronger predictor of delinquency than gender, family structure, poverty or level of maternal education. They found that one in six aggressive, compared with one in 33 non-aggressive, children were delinquent by the time they were 14. By extrapolating figures from the pre- and post-school entry research, they estimated that one in five aggressive two year olds are likely to become aggressive adolescents and one in ten may become delinquent (Bor, *et al*. 2001). Clearly the long-term implications of early aggressive behaviour are significant and serious.

***The Home Learning Environment and its relation to a child’s development***

In essence, as discussed in section 2.1 development occurs through a process of engagement and participation in relationships with trusted and caring others who model the processes of, and provide opportunities for, increasingly self-directed learning. In acquiring the capacity for self-regulated learning, the social and emotional skills that foster the relationship and the executive function skills that promote self-regulation are quite literally *fundamental* for learning. It is the potential for disruption of the parent–child relationship by the conditions of poverty, which then have adverse consequences for children's language and social–emotional development, which is the primary reason why poverty increases the risk for some children’s early years experience.

Policy-makers alarm about the growing achievement gap between children of low income and higher income families is understandable. However, the policy-makers assumption, to compensate those children who are not being given opportunities to learn at home through direct and sequential teaching in schools, although logical, is faulty. Moreover, the evidence shows that what children of higher income families actually receive at home is authentic, relational, spontaneous, conversational, and play-based interaction (see Pungello, *et al.* 2009; Tudge, *et al.* 2001). Moreover, recent evidence from the UK and internationally has shown that it is not poverty or its associated factors per se that adversely affect children’s early development – indeed, it has become clear that it is not who parents ‘are’, but *what they do to support their child* that makes the difference to their development. There is now a significant consensus amongst professionals and academics that specific factors in the home environment – positive parenting, the home learning environment and parents’ attitude towards education – are highly significant (e.g. Gregg and Goodman, 2010).

Further, recent international research has also shown that early intervention contributes significantly to putting children from low-income families on the route to development and achievement in life through support for the whole family. Evidence from programmes such as the *Family Nurse Partnership* (Barnes, *et al.* 2010), *Parent-Child Interaction Therapy* (Zisser and Eyberg, 2010) and *Community Mothers* (McGuire-Schwartz, 2007) have revealed that if appropriately related to health, employment and social services, early childhood services can effectively enhance parenting skills, community-building and maternal employment, and thereby decrease family poverty (Lynch, 2004; Brooks-Gunn, 2003).

The longitudinal EPPE project in the UK (Sylva, *et al.* 2004), which investigated the effects of pre-school education upon 3,000 children, concurred that well-funded, integrated, socio-educational programmes improve the cognitive and social functioning of children at-risk. Evidence from EPPE (2010) suggests that investing in good quality pre-school provision can be seen as an effective means of achieving targets concerning social exclusion and breaking cycles of disadvantage, especially where children are placed in classes composed of children from different social backgrounds. Findings from this study further suggest that specialised support in preschools, particularly for language and pre-reading skills, can benefit children from disadvantaged backgrounds and those for whom English is an additional language.

Importantly, results (Sylva, *et al*. 2004) showed an effect of the early home learning environment on children’s outcomes at the age of five in addition to parental background factors such as socio-economic status, maternal education and family income. Detailed analyses confirm that parental involvement in activities such as reading to children, visits to places of interest, drawing and painting together, singing songs and nursery rhymes together, playing with letters and numbers and so on, influence young children’s social and behavioural achievements over the pre-school period and are significant in accounting for differences in their social and behavioural development at the start of primary school. These findings have been endorsed by other studies, such as that by Brooks-Gunn and Markman (2005) in the USA, who conclude that the key advantage bestowed by higher income within a home is a stimulating learning environment; the number of books in the home and the access of children to learning experiences routinely explain about a third of the ‘poverty effect’. Duncan and Brooks-Gunn (2000) also showed that educational development and attainment are mediated by the home environment and the level of parental interest in their child’s education, the latter factor proving to be a powerful influence on children’s later educational success (Blanden, 2006). Factors such as levels of parental interest in the current and future direction of a child’s education have been seen to increase the child’s chances of moving out of poverty as an adult by 25 percentage points (Blanden, 2006). Evaluations of family literacy projects in the UK endorse this finding – revealing that children make greater progress when their parents participate in learning activities (e.g. Sabates, 2008). Moreover, a study by Asmussen and Weizel (2010) showed that fathers’ involvement in their children’s learning is statistically related to their children achieving higher results and influencing their disposition towards learning and school (and associated improved behaviour). This concurs with a number of studies both from the United States and the UK revealing that the effect of a father’s involvement is independent from that of a mother’s engagement. Effects were also demonstrated both for younger children and for later educational outcomes.

Substantial evidence indicates that parenting practices and styles in relation to their children’s activities in the early years have a powerful influence upon cognitive ability (e.g. Lugo-Gill and Tamis LeMonda, 2008; Melhuish, *et al*. 2001, 2008). Parenting practices such as reading, using complex language as well as dispositions such as responsiveness and warmth in interactions are all associated with better developmental outcomes (Bradley, 2002). Such stimulating activities may not only support the child to acquire the skill directly, but also thereby develop their motivation and disposition towards learning in general. Research findings such as those of the Impact of the Home Learning Environment ; Secondary Analysis of Data from ‘Growing up in Scotland’ (Melhuish, 2010) suggest that policies which encourage active parenting strategies for all SES groups can help to promote children’s cognitive development and educational achievement. The evaluation of the Early Head Start programme, which provided combinations of home visits and centre-based interventions for the families of 0-3 year olds, found that the intervention increased both the quantity and the quality of parental interactions with children, as well as children’s social and cognitive development (Love, *et al.* 2005). The extensive review by Barnes and Freude-Lagevardi (2003) concluded that to be optimal, interventions should include both parent and child together and the focus should be on improving interactions. These conclusions - that parenting behaviours are learnable and that enhanced skills can bring about improved developmental outcomes – have been echoed in the findings of Nutbrown, *et al* (2005) in relation to literacy during the pre-school period.

**Conclusion**

We have seen that children are born with an intrinsic and active drive to make sense of the world, and with a set of sophisticated brain functions that enable them to do so. However, the growth of a child’s capacities to think and understand is not pre-determined by a sort of central ‘powerhouse’ in the brain which decides *what is* to be ‘known’ and *what is not*, therebysetting the child off in one particular direction or another of learning. Whilst there is no doubt that there are genetic and physiological differences between brains, evidence suggests that each child’s development and learning are highly dependent upon the *type of environment* they experience. What this means is that each child, each ‘thinking being’ that emerges from infancy over time, is individual and different from the next, since no two set of experiences are the same. Within this section, some of the detailed evidence has been examined, relating to the effects of different backgrounds upon young children’s cognitive, physical and socio-emotional outcomes. The make-up of our society in England is extremely complex; in reality, there is no such entity as a ‘typical’ child, who experiences a ‘typical’ range of early childhood opportunities. Considerable differences exist in early childhood experiences amongst children, affecting their initial development and persisting as they grow older, influencing their dispositions towards learning as well as the range of skills they will be ready to employ upon arrival in school. Healthy child development may be *supported* by a variety of factors during the early years or, conversely, the desired outcomes for a child may be *compromised* whether temporarily or on a more long-lasting basis. Such factors include, for example, the nature of early relationships with parents and other caregivers, the extent of cognitive stimulation, and access to adequate nutrition, health care, and other resources such as a safe home and neighbourhood environment. Optimistically, it seems that recent research findings present a positive resultant picture. Rather than economic, social or psychological limitations having the greatest influence upon children’s early learning, recent studies reveal that it is the positive parenting characteristics which are practiced in the home, which are most influential. Even if the family is in poverty, increasingly evidence shows that a child growing up in a family with characteristics such as positive but authoritative parenting, high quality childcare, a positive approach to learning at home and an improvement in parents’ qualifications has a good chance of ‘succeeding in life’.

However, in reality, in England the potency of a child’s start in school is often overlooked in the focus upon their ‘deficits’ upon arrival. Indeed, the language used in much recent government guidance reflects a sense of growing anxiety and negativity about the state in which children are emerging out of the Foundation Stage into Primary classes. In its attempt to assuage this escalating anxiety, over recent years the government has intervened increasingly through early years policy and guidance for practitioners, aiming to ‘control’ the diversity of states in which children appear through the school doors and to standardise what will be taught to the children once in Year 1. As such, an emphasis on the acquisition of knowledge without an equal or even perhaps overriding emphasis on the processes through which young children acquire knowledge, is likely to lead to an ineffective and inefficient educational system. Within the next section, Part 2.2(c), the current typical process of a young child’s transition from pre-school into school in England is examined and comparisons are made with the systems evident in other countries and through other early years approaches.

Part 2.3

Starting school; children encountering

transitions, curricula and pedagogies

**Introduction**

This section examines the influence of schools upon children as they arrive and as their ‘schooling’ commences. In most of Europe, as indeed in the USA and Australasia, no child is regarded as ‘ready for school’ – in other words, ready for formal teaching and learning – until they are at least six-years of age. Within England however, in its attempts to ‘raise standards,’ the government has introduced formal curricula at ever-earlier points in school and, within its recent publication of curriculum frameworks and related guidance, has prescribed that children should be ‘made ready’ for school by the age of five-years. Within this section, the current process of transition into a Reception class in a primary school in England is investigated; whereas it used to be the case that children did not start school until the term after their fifth birthday, now most Local Authorities have promoted the practice of having just one admissions entry point into Reception each year, in September. Hence some children enter Reception aged almost 5, whereas others are only just four years old. The challenges brought about by the fact that some children are relatively old, and others relatively young upon entry into school, are discussed in relation to traditional curriculum-centred teaching approaches, such as those framed within the National Curriculum for KS1. Then evidence is examined in relation to how a range of countries and early years approaches offer teaching and learning to the youngest members of society and key differences are explored between ‘pedagogy’ and ‘curriculum’ for the early years. It is hoped that through taking a constructive approach, through developing an understanding of other systems*,* and through a study of the characteristics which are perceived to contribute to the relative success of alternative early years provision, it will be possible to learn about the interplay of different goals and other variables in other countries and early years approaches – and indeed, to learn from them.

***Age of entry to school; international comparisons***

Starting school involves children responding to changes in identity, roles and relationships as they become a ‘pupil’, with new or different expectations placed on them (Griebel and Niesel, 2000) and learning the social rules and values associated with being in an ‘organisation’, an ‘institution’. Transitions between pre-school systems into primary school pose difficulties for young children when they encounter contrasting or widely differing expectations, approaches and values in the new environment. Table 1 indicates the typical age at which children start school in a range of countries, in comparison to the statutory school starting age and how long they spend on average in ECEC (early childhood education and care provision) beforehand.

Table 1 **Expected number of years of early childhood and primary education for children aged up to six-years (Eurostat Database, 2000)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Country | **Typical starting age ECEC (years)** | **Expected length of time in ECEC (years)** | **Primary school typical starting age** | **Primary school compulsory starting age** |
| England | 3 | 0.6 | 4 | 5 |
| USA | 3 | 2.0 | 6 | 5-7 |
| New Zealand | 2 | 2.3 | 5 | 6 |
| Finland | 3-6 | 1.5 | 7 | 7 |
| Denmark | 3 | 3.1 | 7 | 7 |
| Sweden | 3 | 2.6 | 6-7 | 7 |
| Norway | 3 | 2.8 | 6 | 6 |
| Belgium | 2.5 | 3.4 | 6 | 6 |
| France | 2 | 3.4 | 6 | 6 |

ECEC = Early Childhood Education and Care provision

As Table 1 shows, world wide, in those countries providing free compulsory state education, age of admission into primary schooling usually varies between six- and seven-years of age. In England children are admitted, statutorily, at five-years, but in reality most children attend primary school at age four. To be specific, the statutory age for children to start school in England is at the start of the school term followingthe child’s fifth birthday (DCSF, 2009). In practice, however, many Local Education Authorities (LEAs) admit children before that – usually when children are ‘rising fives’ – in other words, they will *become* five in the term, half year, or year in which they are admitted. In response to the recommendations on ‘improving attainment’ of summer-born children made by Rose in his review of the Primary Curriculum (2009), the Admissions Code was revised to require admissions authorities to make a full-time reception place available for all children from the September after their fourth birthday, starting from September 2011, hence there has been a trend for LEAs to adopt an annual admissions policy, according to which, children start school at the beginning of the academic year (September) in which they become five. However, a few still have a bi-annual admissions policy (usually September and January), while others have 3 term entry dates (usually September, January and April). The disparity in admission practices means that the age children can enter school may vary from just 4 years for an August–born child admitted in September (in a school that uses an annual admission policy) to five-years and four-months for an April-born child starting school in September (in a school that has adopted termly admission at statutory age). Although parents retain the right to defer their child’s entry to school until the term after their fifth birthday and although they continue to be able to access their free entitlement for their children in other early years settings instead up until compulsory school age, *in practice* in England, the first year of school commences in Reception classes, comprising children whose ages range from just over four-years to over five-years.

There is very little evidence as to the rationale for children starting at the age of 4 in English Reception classes. According to Bertram and Pascal (2002: p.9), the historic reason for the comparatively early admission to primary education in the UK related to ‘*the pressures of a political compromise agreed in the House of Commons in the 1860s and had no judicious basis in educational theory*’. Further, according to Bertram and Pascal, the timing of the initial moves to do away with the statutory starting age in England was politic, as it coincided with the rapid expansion of women into employment in the 1980s and therefore provided local and central government with an excuse to ignore the fact that the amount and quality of state pre-school provision was seriously inadequate. By way of contrast, in the Netherlands, the lowering of the age of admission to four years (by August 2002) was promoted as an interventionist strategy for disadvantaged children who might need it but who, it was feared, might not attend if it was not compulsory.

***Summer-born children in Reception classes***

In a major review by Sykes, Bell and Rodeiro (2009) it is suggested that summer-born children in Reception classes may be being ‘doubly disadvantaged’ in that they are both *young* (possibly just having had their 4th birthday) and the *youngest* in their class when they start school. They may be disadvantaged by being young because they may not have reached the level of cognitive competence required to tackle a curriculum developed for 5-year-olds and, moreover, they may also experience other types of difficulty, over and above those of low cognitive competence levels, when beginning formal education.

The report (Sykes, *et al.* 2009) suggests that children around the age of 4 may not be ready for the formal environment they encounter in the Reception classroom, which will include having to cope not only with a curriculum that may not be tailored to their needs, but also with a number of social and emotional adjustments. In order to cope with the demands of a school day, many Reception children will arguably require levels of physical, social and emotional maturity normally expected of 5-year-olds and may struggle socially and emotionally to cope with many of the adjustments they have to make when they begin school, including for example, separating without anxiety from their parents every morning, spending longer time away from parents than they might be used to, leaving familiar, comforting surroundings and possessions, becoming familiar with a different structure to their day, adapting to new routines and understanding and adhering to new rules. These factors may cause stress and anxiety. The older children in the class are more likely to have reached the ‘required’ level of competence in all of these skills and therefore may not suffer the same levels of stress as those experienced by their younger peers. There is evidence to suggest that ‘birth date’ effects may be the result of lower levels of maturity in the physical, cognitive, social and emotional domains in the summer-born children, relative to those who are more than a year older at the start of school (Sykes, *et al.* 2009).

Other research studies (e.g. Bell and Daniels, 1990) have revealed that summer-born children are disadvantaged academically and socially; for example, comparisons of August vs. September- born children revealed that 25 % had lower academic attainment at Key Stage 1 and in the longer term, 20% were less likely to go to university. A study by Gledhill, Ford and Goodman (2002) with a sample of 8,000 children aged 5-15, revealed that summer-born children with the same level of ability as non-summer-borns are approximately 50% more likely to be diagnosed as having SEN. The studies suggest that teachers may not take relative ages into account when making assessments and early ‘labelling’ can lead to teacher expectancy effects.

There is some evidence that *starting formal education later helps to reduce birthdate effects*, as found by Bedard and Dhuey (2006), who, acknowledging the difficulties in comparing evidence of relative age effects from educational systems across different countries, were nonetheless able to make comparisons across the educational systems of up to 19 OECD countries. They found robust relative age effects for maths and science in the majority of the countries examined, but not for children aged 13 in Finland or Denmark. Bedard and Dhuey’s explanation for these results relate to the fact that, in Finland, children do not begin compulsory education until age 7 and the primary classes do not focus on a formal curriculum, but on play and personal development, and in Denmark, formal education begins at age 6, but children are not differentiated on the basis of ability until the age of 16. This led Bedard and Dhuey to suggest that ‘*Birth date effects appear to be greatly reduced in countries where formal education begins at a later age. There needs to be a careful consideration of what is best for all children in the early years of schooling, based on solid evidence from psychological research* (in Sykes, *et al.* 2009: p.4). By way of highlighting the effectiveness of the educational system in one of these countries in which children do not start school until a later age – Finland, for example – it is worthwhile reminding ourselves of the cross-country comparisons of the PISA (the OECD’s Programme for International Student Assessment) 2009 data. In its assessment tests of 15-year-olds in reading comprehension, mathematics and science, Finland not only achieved high average scores but also revealed some of the smallest spreads of scores in comparison to the other 53 participating OECD countries. In other words, its education system is seen to be both high-achieving and well-balanced across its population. In contrast, England’s (and the UK’s) mean score, in reading, mathematics and science did not change significantly between 2006 and 2009 and barely reached the OECD average for reading and mathematics in 2009. The wide confidence intervals of the 2009 scores implied a downward trend over the previous ten years. Furthermore, the UK results showed relatively large gaps between the scores for the 95th percentile (highest scoring) and the fifth percentile (lowest scoring) groups except in maths. How much this is related to the ‘early start’ of formal curricula methods and the ‘birth date’ effect cannot be ascertained with certainty, but the contrast between the two countries’ results at age 15 is striking.

In the following sections, we examine further the evidence from research into the characteristics of international pre-school provision with the aim of isolating factors which contribute to their effectiveness. We investigate *social constructivism* (or *social pedagogy* as it is also known), as found embedded in the educational systems of many Scandinavian and Central European countries, as well as several early years approaches based upon this construct, including the *Reggio Emilia,* the *Experiential Education,* the *Te Whaariki,* the *High/Scope* and the *Playful Learning* approaches to early years education. We also look at several existing *Pre-Primary School* models for the early years, as found in the USA and England, for example. It becomes apparent that there is a clear divide between governments in their perception of the *purpose* of early childhood provision, reflected in the curriculum frameworks they have drawn up for early years provision within their countries.

***Curriculum guidance; highlighting two contrasting perspectives on its purpose***

As we discussed in Part 1 (section 1.5), at the centre of much widely respected early years provision, such as that of Reggio Emilia (Rinaldi, 2006) and Experiential Learning (Laevers, 2003), for example, lie the notion and methods of *social constructivism* (Vygotsky, 1978). This philosophy focuses upon the interests, experience and choices of young children within social contexts. Such an approach is regarded as being ‘pedagogy’, a broader concept than ‘curriculum’ in that it also encompasses the physical, emotional and social environments of young children. Social constructivist pedagogy places equal value upon care, upbringing and learning and is evident in many countries of Scandinavia and Central Europe.

Practitioners working in a *social constructivist* tradition (also called social pedagogy) recognise that what a child learns influences how they will developand that a child’s capacity to think and understand stems from their interactions with others, predominantly through spoken language. At its heart lies the goal of self-regulation; over time, the child becomes able to regulate their *own* social, emotional and cognitive functions rather then relying on adult support. Thus social pedagogy supports the development of executive functions such as the child’s working memory, powers of attention and their inhibitory control, as well as their language and expressive abilities - all of which underpin the child’s developing capacities for self-regulation (Martin-Korpi, 2005). Clearly the goals of such a pedagogy are not so much content-related but process-related; there is an emphasis upon learning skills and acquiring dispositions which will be useful to the child in their life-long learning, not just to pass examinations.

As in England and the USA, national curriculum frameworks for the early years sector exist within Scandinavia and many Central European countries. Indeed, some governments introduced them over a decade ago – for example Sweden has had one for 1-6 year olds since 1998 and Norway for birth-six-year olds from 1996. Also, as in England and the USA, many European countries have seen the emergence of ‘transition classes’, located eitherin kindergartens (e.g. Cyprus) *or* in schools (e.g. Poland) *or* in both (e.g. Bulgaria, Finland) and labelled with a range of names (e.g. ‘preparation class’ ‘reception class’, ‘pre-school class’), with some countries even insisting upon compulsory attendance (e.g. Poland). In their provision of a common curriculum framework, the aim of these governments is to ensure smooth transitions for children across different schooling systems. The use of familiar curricula structures bridges the ‘institutional divide’ by linking themes and strategies in the year before official school entry to those in the first years of primary school.

However, there is a clear divide between governments in their perception of the *purpose* of early childhood provision, reflected in the curriculum frameworks they have drawn up for providers. On the one hand, in many European countries, government policy makers see early childhood as an extension of home life, and place more emphasis upon the continuing unfolding of children’s emotional, social and physical development throughout this phase, enabled through an holistic pedagogy. On the other hand, policy makers in England and the USA see early childhood as a phase for preparation for school, and so emphasise the necessity to develop children’s linguistic and cognitive skills during this phase through a prescriptive curriculum.

*The Scandinavian Model of Social Pedagogy*

A pedagogic model often held up as the shining example to the rest of the world, is that seen in many of the Scandinavian and Central European countries, such as Finland, Sweden and Norway. It seems that a unique early childhood approach and pedagogy has been worked out by these countries perpetuating the *social pedagogy* tradition, in which a *broad* concept of pedagogyis implemented - understood within these countries to require an integrated approach towards children’s early years, combining care, upbringing and learning in equal measures (OECD, 2010).

It seems that the Scandinavian countries do not need to resort to the range of remedial measures which the English government is forced to consider, due in part to the fact that over previous decades, there has been a shrewd and far-sighted approach towards developing policies relating to employment, immigration, and other fiscal, social and family issues (OECD, 2010). Child poverty and associated disadvantage seen in more ‘economically unequal’ societies over the decades have been avoided to a large degree in the Scandinavian countries and some Central European countries, through insightful policy moves taken some twenty years ago. For example, the economically difficult but family-first pre-emptive policy decisions relating to maternity and paternity leave during the first year(s) of a child’s life, while safeguarding employment rights for women (OECD, 2006: p. 26). Such policy decisions have ‘flavoured’ the type and style of early years provision in these Scandinavian countries, which has evolved almost as an extension of the family home environment.

As in England, national curriculum frameworks exist within these countries, but they are used as instruments of general guidance rather than policy instruments to bring about a set of pre-defined standards for a child’s entry into primary school. The Curriculum for Pre-school in Sweden (Lpfö, 1998) gives pre-schools the responsibility to ensure that children are supported in:

1. the development of their vocabulary and understanding of concepts (through the ability to play with words, an interest in the written language, and an understanding of symbols as well as their communicative function;
2. the development of the ability to discover and use mathematics in meaningful contexts and situations( - and of their appreciation of the basic characteristics of the concept of number, measurement and form), as well as
3. the ability to orient themselves in time and space and
4. the development of an understanding of their own involvement in the processes of nature and in simple scientific phenomena (such as knowledge of plants and animals).

However, these four aims appear towards the end of the 15 goals set for pre-school, and priority is given in the early months especially, to more personal aims, such as the development of their identity and feelings of security in themselves and the development of their curiosity and enjoyment at the same time as the ability to play and learn. Pre-schools exercise a high degree of autonomy in determining their own curricula in consultation with agents in the children’s immediate social context, such as parents and wider family members. This enables an holistic pedagogical approach, in which children are supported in their current developmental foci and interests and in which the pedagogies, content and learning of particular groups of children can be fine-tuned to individual needs within the specific contexts. The natural learning strategies of young children are valued, such as learning through activity, play, social interaction and individual investigation. There is a movement to extend this early childhood pedagogy into the lower classes of primary school in many Scandinavian and Central European countries (Martin-Korpi, 2005).

Within not just pre-school settings, but also the early years of primary school, the focus is on supporting children to achieve broad developmental goals in the areas of socio-emotional understanding; personal and social skills; physical and motor skills and artistic and cultural development. The children become knowledgeable about basic science, number and literacy notions though experiencing real-life, naturally-occurring events and activities rather than undergoing curriculum approaches with defined, pre-determined subject content. The overall outcome is that through acquiring the general knowledge that helps children make sense of their experience, and more importantly, increases their self-esteem and confidence as a learner, children become ‘ready’ for further learning challenges, within primary school.

*The Reggio Emilia approach to early years education*

The Reggio Emilia approach does not adhere to a National Curriculum framework or formalised curriculum policy. It represents a model of a pedagogy based on socio-constructivism, which is putting down roots in countries with educational approaches that are open to experimentation, research and reflection on democratic practice in education, thereby fostering a localised, learner-centred approach as an alternative to national centralised, uniform curricula. In this approach the child is viewed as having rights, being an active constructor of knowledge and a social being, and the teacher is viewed as a collaborator and co-learner with the child, whose role is to guide, facilitate and encourage research. Its implementation of a ‘*pedagogy of listening*’ respects the efforts of children to make meaning of their experience, and challenges the notion of education as preparation for school (Rinaldi, 2006). The primary method through which children learn is collaborative project work - by working together on a ‘venture’, they jointly construct knowledge, building up increasingly complex understandings of their chosen themes. The pedagogists hold that by encouraging the initiatives and meaning-making of children, their cognitive development is fostered.

*The Experiential Education approach*

The Experiential Education (Laevers, 2000) approach, flourishing in the Flemish part of Belgium and parts of the Netherlands, is another example of socio-constructivism. Within this approach, there is a strong emphasis upon children’s involvement (‘connectedness’) and well-being, which has changed the educators’ focus upon programme content to children’s individual needs and interests. The basic competenciesabout which the pedagogy is built include; gross and fine motor development, expression through visual arts and language, understanding the world of objects and the world of people, logical mathematical competence and self-organisation and entrepreneurship. The high level of self-regulation aimed for is evident within the description by Laevers (2005):

The child is supported in becoming able to manage him/herself well: knows what (s)he wants, can set goals, can engage into action without delay and achieve a good result. Does not give up at the first obstacle and can persist. Can step back and work strategically. Is able to exploit various possibilities and adapt to changing circumstances. Is not ruled by the surroundings, but actively determines the group’s course together with others*.* (p. 35)

In these schools in Flanders, transition across the pre-school to primary school threshold is eased for children though an emphasis upon continuity of approach, a common approach to children, guided by the *Experiential Education* programme, used increasingly in child care settings, the kindergarten school, the primary school and other educational settings. The aim of this approach is to start from the perspective of the children, ensuring their wellbeing and involvement at all stages in their school career.

*The* *Te Whaariki approach*

The *Te Whaariki* curriculum recognises the importance of spontaneous play and the value of play as meaningful learning*,* viewing the curriculum as a complex and rich experiential process arising out of the child’s interactions with the physical and social environment. The developers of the New Zealand early childhood curriculum aimed to incorporate ‘equitable educational opportunities and quality early childhood policies and practices’ into the framework (Carr and May, 2000: p. 53), incorporating Maori perspectives and founding it upon a sociocultural view of curriculum and childhood, derived from Vygotsky (1978). It is divided into age groups, (i.e. ‘infants’, ‘toddlers’ and the ‘young child)’. Local cultural views of learning in New Zealand communities are linked to the views in international and child development literature, which stresses the diversity of child development rather than a universal view and develops an ‘holistic’ approach in supporting the child through their learning (see Carr and May, 2000).

*The High/Scope Approach*

Play-based pedagogies for early learning are also evident in other countries – for example, the High/Scope curriculum developed from the US Head Start project, which emphasises that children learn best from activities that they themselves plan, carry out, and review (Hohmann, *et al.* 2008). The High/Scope curriculum emphasizes *active participatory learning.* Children have direct, hands-on experiences with people, objects, events, and ideas and children's interests and choices are at the heart of the approach. They construct their own knowledge through interactions with the world and the people around them in which adults expand children's thinking with diverse materials and nurturing interactions. A High/Scope school classroom is divided into well-defined interest areas that typically include a home corner, art area, block area, toy area, and other areas that reflect the children's interests. Children are able to access all facilities independently as well as take some responsibility for use of these areas.

High/Scope classrooms follow a predictable sequence of events called the *daily routine,* which includes plan-do-review, small- and large-group times, outside time, transition times, and eating and resting times. A key component of the High/Scope approach is the *plan-do-review* sequence. Children first plan what materials they want to work with, what they want to do, and whom they want to do it with (this can be done formally or informally in small groups). Once they have made a plan of what they want to do, they can go and do it. Then, after this chosen worktime, the children discuss what they did and whether it was the same as, or different from, what they had planned. Shared control between adults and children is central to the High/Scope Curriculum. Adults also participate in children's play, converse as partners with them, focus on children's strengths and offer them support, and encourage the children's problem solving.

*Playful Learning*

Playful Learning, an early years approach gaining credence in the USA, embeds a core curriculum within a playful pedagogy. Starting from the premise that academic advancement is cumulative and that young children thrive in settings with a strong curricular base that expose them to foundational skills that are necessary for learning in school, several researchers (e.g. Hirsh-Pasek, *et al.*2009) have begun to put the case for a core curriculum but based on the evidence suggesting that children learn best through the kinds of meaningful engagement and exploration found in play. They hold that curricular goals need not constrain pedagogical practices; children can learn and learn well in playful classrooms, based on a set of well established learning principles (Hirsh-Pasek, *et al*. 2009) that illustrate how children master academic and social competencies through play. They argue thatyoung children learn language, reading and mathematics as well or better when they have a combination of free and purposeful play than they do when they are trained with methods of direct instruction. For example, evidence is cited revealing that free play activities provide opportunities to explore, practice, acquire and refine early maths and science concepts and skills through playful investigation (Sarama and Clements, 2009a, 2009b; Tamis-LeMonda, *et al.* 2002). It seems that children who engage in these activities with high frequencies also showed stronger academic gains (e.g. Ginsburg, *et al.* 2008; Wolfgang, *et al.* 2003). Also those participating in manipulative activities (e.g., block play, model building, carpentry) or playing with art materials did better in spatial visualization, visual-motor coordination, and creative use of visual materials (e.g., Wolfgang, *et al.* 2003).

*Playful Learning* uses learning principles to describe how looking at learning through play offers a broader perspective on the skill sets that young children must develop to be successful in school and in the global world beyond the school walls, believing that a whole-child perspective enhances children’s social, academic, and creative development, allows for accountability and can easily be aligned with the US primary education system (Bogard and Takanishi, 2005).

*The Swedish Model*

In Sweden, the Ministry of Education, Research and Culture has responsibility for both early childhood and primary education services. Moreover, teachers and early childhood pedagogues are trained together, with the latter specialising in early childhood theory and practice in addition to the shared modules. Integrated training courses guarantee a common understanding of the specific needs and natural learning patterns of younger children and a common theoretical core is shared. Following this core training, teachers opt to take intensive training and *practica* in one of three groups: pre-school pedagogy, primary teaching or free-time activities (Children in Europe, 2003). Children’s transitions from pre-school to primary school are facilitated not only through experiencing common pedagogical approaches in pre-school and primary settings, but also through curriculum continuity; the concepts and values woven through the national curriculum also thread through the ECEC and pre-school curriculum, via established areas of learning across both types of provision and into school.

Upon entry into early childhood ECEC provision (from age three- to four-years), the emphasis is upon adults scaffolding children’s personal and social development, namely in the areas of self-identity and self-esteem as well as curiosity and enjoyment in learning and playing (‘*rather than achieving a pre-specified level of knowledge and proficiency*’ (Martin-Korpi, 2005: p.34). There is a pragmatic integration of early childhood provision and primary school in Denmark, Finland and Sweden, facilitated through a special year called the ‘pre-school class’. This class, for six-to-seven-year-olds, extends the learning approaches of the kindergarten into the first years of the primary school, thereby bridging ECEC provision and primary schooling. In Denmark, a pedagogue leads the pre-school class, which takes place in the local primary school from the originating kindergarten centre. He or she works alongside the primary teacher who is responsible for the class in the coming year. This bridging period is followed up by a curriculum for first and second grades of primary school that is designed to incorporate active learning and child initiative, as found in the pre-school.

The Swedish pre-school curriculum details 15 ‘early learning goals’ that adults should support children towards by the end of the ‘ pre-school class’ (when children are aged 7); development of their vocabulary and concepts (the ability to play with words, an interest in the written language, and an understanding of symbols as well as their communicative function); their ability to discover and use mathematics in meaningful contexts and situations; their understanding of the basic characteristics of the concept of number, measurement and form, as well as the ability to locate themselves in time and space; and an understanding of their own involvement in the processes of nature and in simple scientific phenomena, such as knowledge of plants and animals. The pedagogy employed in the pre-school class and the initial years of the primary school retains the ‘hands-on’ and experiential nature of the ECEC provision, and learning is generated primarily through group projects, peer teamwork and an active pedagogy, much of which is inspired by the Reggio Emilia project work approach.

*Integrated provision in Children’s Centres in the UK*

In England, the EPPE research (Sylva, *et al*. 2008) showed that children make better all round progress in settings where care and education are integrated and where children’s educational and social development are considered equal. The children’s centres in England are focussed on the development and education of young children, but also aim to provide participation for parents and families through the provision of a range of services, such as job-training, parent groups, and leisure-time activities. Strong links are therefore forged between service providers and the local community, which are of particular importance for immigrant or other socially isolated families and children. Co-operation between different services within a children’s centre, combining centre-based services, family day care, school and out-of school provision – helps to create a continuum of services that is consistent and reliable for parents and can meet the needs of young children. An essential aim of the children’s centres is to articulate appropriate pedagogical approaches for the particular community and its young children, elaborated in consultation with parents. The EPPE findings showed positive effects in terms of children’s cognitive and social development, with integrated centres and nursery schools, in particular, producing superior effects (Sylva, *et al.* 2004). This was mirrored in the Preparing for School study in Queensland, Australia, which found that provision of a universally available, full-time, play-based education programme closed the gap in achievement in social development, numeracy and literacy achievement between socially advantaged and disadvantaged children (Thorpe, *et al.* 2004).

It is clear that predominantly within the European countries described above, and within many early childhood approaches, early childhood provision is understood as an extension of home life, and emphasis is placed upon the continuing unfolding of children’s emotional, social and physical development throughout this phase, enabled through holistic pedagogies. Care and nurturing of the whole child are valued as much as their ‘education’. Early childhood educationalists understand that *what* children learn influences their development, and *how they learn* is equally important - so they support children in their current developmental levels and interests and the content of ‘curricula’ are fine-tuned to the child’s specific and authentic social contexts. The natural learning strategies of young children are valued, such as learning through activity, play, investigation and social interaction, not subjugated to content-driven curricula planning and ‘formal’ teaching methods.

***The Pre-Primary School model for the early years***

On the other hand, policy makers in England and the USA see early childhood as a phase for preparation for school, and so emphasise the necessity to develop children’s linguistic and cognitive skills during this phase through a prescriptive curriculum. It seems that there is a clear divide between governments in their perception of the *purpose* of early childhood provision, reflected in the curriculum frameworks they have drawn up for providers. At the other end of the ‘spectrum’ of government approaches towards early years development and curriculum from those based on social pedagogy, are those referred to as the ‘pre-primary school’ curriculum model (OECD, 2006: p.63), with its emphasis upon more focused skills and school-like learning areas, *e.g.* mathematical development, language and literacy skills. In the States this ‘schoolifying’ of the early childhood years (OECD, 2006, p.63) has been reinforced by the current focus on preparation for school and the introduction of learning standards in most States, adopted for pre-kindergarten and kindergarten children and usually focussed upon language and literacy and general knowledge areas. These have evolved in line with current American policy, which values a ‘readiness for school’ approach, in order to ensure that all young children acquire basic knowledge and skills, and that continuity is provided between elementary school, kindergartens and pre-kindergarten.

*Preparation for school*

The ‘readiness for school’ model offers the security to education ministries of children entering primary school already prepared to read and write, and being able to conform to many classroom routines. Indeed, it seems that several Governments may have purposely, or otherwise, interpreted some key research studies from the United Kingdom, the USA and a meta-analysis from the Netherlands (Leseman, 2002) from a ‘traditional schooling’ perspective, understanding some of the recommendations in a particular light, as supporting a more structured approach to curriculum and learning in pre-school. For example, The US Eager to Learn committee proposed a mixture of self-directed learning and teacher-directed instruction in early education (Bowman, *et al.* 2001) as did the EPPE study (Siraj-Blatchford, *et al.* 2003) and the Preparing for School study in Australia (Thorpe, *et al*. 2004). In these studies, definitions of effective pedagogy included descriptions of interaction perhaps more traditionally associated with the term ‘teaching’, namely the provision of instructive learning environments, ‘sustained shared thinking’ and clearly stated *learning objectives* to extend children’s learning. However, these findings, based upon the realisation that children’s most enduring cognitive results are achieved through pedagogical methods targeting both cognitive and socio-emotional outcomes simultaneously, *are not remotely at odds with the pedagogical approach of social constructivism.* Nonetheless, a huge divide has somehow appeared in the *interpretation* of such recommendations for teaching approaches – whereas educationalists within the social constructivist approach believe that it is primarily through children’s increased agency and the pursuit of more holistic aims that deep learning occurs, it seems that educationalists in other approaches have thought that the safest option is to transfer curriculum downwards from primary school towards pre-school in terms of subject areas, programme standards and pedagogical approaches. Such a ‘pre-primary approach’ (OECD, 2006: p.63) to the early years period is found for example in England, the US, Australia, Canada, France, Ireland and in parts of the Netherlands (OECD, 2006: p.61). As a consequence, the natural learning strategies of young children – play, exploration of the outdoors and freedom of movement, relations and discussion with other children within the classroom – are not always encouraged. Moreover, in England, structural standards have been influential; class ratios normally exceed 20 children per teacher within Reception classes, often within non-purpose built, small-sized classrooms. It is often difficult for teachers to practise an inter-relational, play-based curriculum in which young children are free to pursue their own interests and learning agendas in such circumstances and far safer to deliver a prescriptive curriculum (see Weikart, *et al.* 2003).

Perhaps an explanation for the trend towards direct instruction in pre-schools can be found within the early years profession itself. Perhaps in some places over the years, well-designed play programmes have become too ‘laissez-faire’ and perhaps some pre-school programmes, promoted as play-based have lacked thoughtful planning, implementation and assessment. Perhaps a ‘sit-back-and-watch’ approach towards supporting child development has infiltrated some provision. In such cases, when teaching methods fail to support satisfactory development of the children, policy-makers blame ‘play’ per se rather than understanding that as a natural early childhood learning process, its support depends upon skilled practitioners with a deep understanding of its role in children’s learning, in order that provision can be skilfully planned and carefully assessed. These aspects of high quality child-oriented provision have been emphasised by the EPPE findings for example (Sylva *et al*, 2004, p.6) – particularly with regard to the requirement for highly qualified, trained and skilled teachers.

*‘Readiness for School’: the persistence of the ‘earlier the better’ approach*

So, in direct contrast to the broad European curriculum frameworks, stands curriculum guidance such as that provided, for example, by the UK government in 2008 and revised in 2011, and the US government in 1990, both of which rate highly the ‘earlier the better’ approach to early childhood education.

The concept of ‘preparation for school’ first reached national prominence in the USA in 1990 when the president and 50 governors established the National Education Goals Panel, identifying Goal 1 as ‘*By the year 2000 all children will start school ready to learn*.’ Subsequently, the Goals Panel (National Education Goals Panel, 1991) defined the construct of ‘ready to learn’ as consisting of five dimensions, namely language use, cognition and general knowledge, physical health and wellbeing, social and emotional development, and approaches to learning. More recently, *Building Strong Foundations for Early Learning: The US Department of Education’s Guide to High Quality Early Childhood Education Programs* (Dwyer, *et.al.* 2000) lists several outcomes deemed desirable for children who will have completed high-quality pre-school programmes. Communication skills encompassing both expressive and receptive language are high on the list. Children are expected to learn new vocabulary as well as basic computer language. There is an emphasis on phonic awareness, including an ability to identify words with the same sounds and to break words into syllables. Thus, there is clearly an emphasis on reading readiness, understanding that print conveys messages and that there are print conventions (reading left to right, for example). Children are also expected to begin to write the letters of their own names and to recognise additional letters. Comprehension of stories is important and visits to libraries, interest in reading and attempts to write are included in the guidelines (Dwyer, *et al.* 2000). Social skills are not prominently featured in the federal guidelines and *nowhere* in this document is there any mention of guided imaginative play as a method for teaching readiness skills for school entrance into Kindergarten. The Head Start Bureau (2001) expanded on the ‘ready to learn’ construct when it promulgated a Child Outcomes Framework delineating the expectations for children on leaving Head Start. The Head Start Child Outcomes Framework lists eight dimensions of school readiness with numerous indicators and examples provided to further describe each dimension: language development, literacy, mathematics, science, creative arts, social and emotional development, approaches to learning, and physical health and development. Two major effects have been seen in relation to this ‘earlier is better’ approach in the USA.

*‘Readiness assessment’*

The first observed effect has been the introduction, within the USA, of programme *standards* for early education, including child outcomes – what children should know and be able to do after participating in pre-school programmes in preparation for the Kindergarten year (when a child is aged six-to-seven-years). Such standards detail the range of knowledge, skills and dispositions that children are expected to develop as a result of classroom experiences, and focus upon knowledge and skills useful for school, namely*,* literacy, maths and scientific thinking. Their development was instigated at the request of elementary school administrators and teachers who were becoming increasingly concerned with how children’s preschool experiences would help them to meet kindergarten expectations; the early learning standards are intended to assist preschool teachers and administrators in shaping meaningful and well-rounded daily programs for children in order to help prepare them for later school success. They include examples of what most children are able to do at a particular age when exposed to appropriate learning experiences. A position statement (2003) from the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) states that, ‘… standards can help practitioners and policy makers create a clear focus on what is truly important in early education…’ (p.66).

*Failure at the age of 6 years; retention and ‘sitting out’ in US Kindergartens*

The second effect, as reflected in research by Shepherd (1997), has been that readiness assessment tools in many States were (and continue to be) used for a variety of questionable and controversial purposes. Within Shepherd’s study, the detrimental effect of high stakes testing on children was examined and it was found that even if children do not realise that they are being tested, they do recognise unfamiliar situations and they also make their own judgements about their ‘success’ or ‘failure’ in the required tasks, particularly when some are asked to take a similar test again within a few months. Shepherd found that at the age of six (or five as some are), children’s belief in their abilities, and their confidence in school, can be strongly and negatively affected by highly constrained testing situations. The practice of ‘academic red shirting’ (Katz, 2000) is one outcome revealed by the research into readiness assessment processes; in this scenario, a child who does not perform adequately on a readiness assessment for entry to kindergarten, is asked to ‘sit out’ a year, with the justification that the following school year, the child will be more mature and better equipped to succeed in kindergarten. The results of readiness assessments are also used to retain children *in kindergarten* for an extra year if they do not perform up to the standards needed for them to enter first grade, a practice referred to as kindergarten ‘retention’. Shepherd (1997) further maintained that readiness tests have also been used inappropriately as a tool to identify children with special needs and for placement in specific kinds of remedial classroom settings—a purpose that they are not designed to fulfil.

***Linking practice to theory to understand the ‘gap’ between social constructivist and pre-primary school approaches to early years education; Self Determination Theory***

When children walk through the doors into any classroom, they bring with them a unique bundle of needs, interests and values, as detailed in Part 2.2. The classrooms into which they enter, offer a range of interesting things to do, teachers and other adults to relate to, and a ‘curriculum’ to guide the classroom activity. When these interactions go well, the classroom functions as a support system for children to satisfy their needs, explore interests, refine skills, internalise values and develop socially. In these conditions, children’s classroom behaviour reflects their needs, interests and values and they show strong motivation, active engagement and meaningful learning (Reeve, 2002; Ryan and Deci, 2000; 2004). When these interactions go awry, the classroom places demands upon children to put aside their personal preferences and follow instead a prescription that tells them what they have to do. Under these controlling conditions, children’s classroom behaviour reflects socially-engineered motivation prompted by incentives and coercion that is characterised by ‘*lacklustre engagement, superficial learning, challenge avoidance and a tendency towards negative emotionality’* (Reeve, *et al.* 2004: p.32).

It is insightful to view the essential factors inherent within the different early years approaches investigated above, through the theoretical lens of ‘self determination theory’ (SDT). Comparing and contrasting a typical social-constructivist classroom with that of the pre-primary school model may delineate the underlying dynamics of these early years systems. Self-determination theory (SDT) is a theory of motivation providing an approach to understanding and enhancing learner motivation. The theory assumes that all learners, no matter how impoverished or inexperienced their backgrounds, possess inherent capacities for growth and innate psychological needs which provide a motivational platform for their autonomous motivation and healthy psychological development (Ryan and Deci, 2000, 2002). The three psychological needs are autonomy, competence and relatedness. Self-determination theory asserts that people have an intrinsic desire to explore, understand, and assimilate aspects of their environment. This *proactive motivation* is present from the very earliest stages of development, does not depend on external pressures, and is essential for the acquisition of cognitive skills and the development of self. Optimal learning, it is argued, requires this intrinsic motivation, along with extrinsic motivation that has been internalized and integrated with one's sense of self (Ryan and Deci, 2000). From an educator’s perspective, finding a way to support children’s *active nature* is the means to facilitating optimal functioning, academic engagement, constructive social development and social well-being (Ryan and Deci, 2000).

A considerable amount of research has taken place in educational settings, which has proved useful in predicting a variety of motivational and outcome variables as well as proving to be reliable in predicting children’s investment in learning activities, persistence and levels of achievement (Black and Deci, 2000). This SDT research has focused on the interpersonal environment of classrooms and the effects of that environment on children’s autonomous and controlled motivation. Being ‘autonomously motivated’ involves children experiencing volition and choice, whereas ‘controlled motivation’ involves the experience of being pressured or coerced. Intrinsic motivation and well-internalized forms of extrinsic motivation are considered autonomous, whereas poorly internalized forms of extrinsic motivation are considered controlled (Deci and Ryan, 1985).

*Autonomy-Supportive Versus Controlling Social Environments*

Since learning based on inherent interest or internalized values yields many advantages, SDT researchers have explored how the social contexts of classrooms can promote autonomous motivation and its adaptive qualities. Many studies have focused on aspects of the social context that make it *autonomy-supportive* as opposed to *controlling*. Environmental supports for an experience of autonomy include opportunities for self-direction (Reeve, 2003) and the provision of rationales (Reeve *et al*, 2003) for example. Whilst various factors affect whether the interpersonal climate of a classroom tends to be more autonomy-supportive or controlling, among the more important of these is the orientation of the teacher. It seems that a teacher’s motivating style towards children can be described as being along a continuum (see Reeve, Deci and Ryan, 2004: p.47) that ranges from highly controlling to highly autonomy-supportive. While an outline of the main elements of autonomy-supportive practice is given below, the key practices will be discussed in Part 2.4, where the ‘essential ingredients’ for a model of early years pedagogy are explored.

Some teachers believe that it is their job to make sure that children do things correctly, to convey to the children that they should do as they are told, and to use controls in an attempt to make sure that they do. *Controlling* contexts tend to pressure children to think, act, or feel in particular ways. Two types of controlling contexts have been differentiated, namely, *externally* controlling and *internally* controlling contexts. Externally controlling environments pertain to the use of overtly coercive strategies, such as salient reward contingencies, deadlines, and overtly controlling language (e.g., the use of ‘have to,’ ‘should,’ and ‘ought’). Such strategies place learners under pressure to engage in the learning by inducing externally controlled regulation. However, learners can also easily *place themselves* under pressure to engage in a particular activity, and these pressures are referred to as internal controls. SDT holds that the social environment can quite easily trigger these controlling processes that typically reside within children at some level, and can regulate their behaviour – e.g. guilt-inducing strategies, shaming procedures, and the use of conditional regard (Assor, *et al.* 2004).

*Autonomy-supportive* classrooms on the other hand are those that nurture and involve children’s psychological needs, personal interests and values, rather than neglecting or frustrating them. Teachers in these classrooms believe it is important for children to initiate behaviours, to learn from both their successes and their failures and to try to solve problems for themselves, rather than relying upon the teacher to tell them what to do. In *autonomy-supportive* contexts, teachers empathize with the learner’s perspective, allow opportunities for self-initiation and choice, provide a meaningful rationale if choice is constrained, refrain from the use of pressures and contingencies to motivate behaviour, and provide timely positive feedback (Gurland and Grolnick, 2003; Hardre and Reeve, 2003).

An early study by Deci, *et a.l* (1987) assessed at the beginning of the school year the degree to which teachers of children aged seven-to-10 years were oriented towards controlling their classes versus promoting their autonomy. Two months later, the researchers assessed the children’s intrinsic motivation, perceived competence and self-esteem. It was found that, in classrooms in which teachers were autonomy-supportive, children were more intrinsically motivated, as revealed through their behaviours of curiosity, attempts at self-initiated mastery and facing challenges independently. The children of autonomy-supportive teachers also felt more competent at school work and had higher levels of self-esteem. A further study by Chirkov and Ryan (2003) carried out in the USA and Russia, discovered that teacher autonomy-support was important for children’s internalised motivation for schoolwork, self esteem and feelings of well-being. It has been found that practices and policies focused on motivating learning through sanctions, rewards, evaluations and other external manipulations, undermine quality engagement, whereas those that foster genuine interest, volition and value, result in both greater persistence and better quality learning. According to Deci and Ryan (2008), based on the numerous studies of SDT underscoring the importance of autonomous regulation and intrinsic goals for children’s learning, performance and psychological well-being, *‘the importance of autonomy-supportive teachers and classrooms cannot be overstated’* (p.19).

*What has gone wrong in England? Curriculum rather than pedagogy*

In England, from 2005, the curriculum for very young children aged 0-3 had been based upon *Birth to Three Matters* (DfES, 2005) which attempted to minimise the division between child ‘care’ and early ‘education’ through an emphasis upon the *strong child* (identity building, being acknowledged and affirmed, developing self-confidence and a sense of belonging); the *skilful communicator* (being together, finding a voice, listening and responding, making meaning); the *competent learner* (making connections, being imaginative, being creative, representing); and the *healthy child* (emotional well-being, growing and developing, keeping safe, healthy choices). Further recognition of the overlap between the two aspects of early years ‘educare’ was an important part of the rationale for the introduction of the EYFS in 2008, which brought together requirements for learning and development with those for welfare. This could be seen as a move on the part of policy-makers to broaden the pre-school offering from mere *curriculum* and *Standards enforcement* towards a pedagogy, with an emphasis within the Framework upon the ‘whole child’ and an explicit statement that practitioners were not required to use any one particular early years approach to support young children’s development in the prescribed learning areas, only stipulating that they should be delivered through ‘planned, purposeful play’, with a balance of adult-led and child-initiated activities. Indeed, it emphasised that each child should be supported to progress at their own pace, and that every child is a unique, competent learner, reflecting some of the language and principles of self-determination theory. Such an aligning of expectations and teaching practices between early education settings and formal school settings included within the Foundation Stage was to be welcomed, as it should have led to children experiencing less stress and their learning and development trajectories not reaching plateaux as they adjust to a new setting, with teachers and families sharing common goals for growth. (Ahtola, *et al.* 2011; Howes, *et al.* 2007; Barnett, 2009). A number of research studies have emphasised the importance of making strong connections between the differing cultures and traditions on either side of the early education divide (Yeboah, 2002; Broström, *et al.* 2003).

Although the EYFS Framework was constructed in consultation with a wide range of representatives from the early childhood community and included a focus on describing learning opportunities and experiences considered to be appropriate for young children, rather than on the achievement of outcomes, which made the document more palatable to the early childhood community (Anning, 2001), there remained issues with it. Opponents argue that the EYFS ‘'sets the standards’ for children’s development from birth to age five years through embracing a stepped, sequential approach to learning, organising the requirements particularly for Reception-aged children through externally imposed ‘learning areas’ linked to the subject areas of the National Curriculum. *The view of children’s development underlying this model is that learning takes place in a straightforward sequential manner, which can be assessed and itemised at predetermined levels*. In structuring the curriculum and its assessment in this manner, the policy makers made assumptions about where the levels begin and end for all children. They have also determined what specific skills and knowledge can be learnt (Miller, *et al*. 2002). Opponents understand the transition model as the imposition of school into the lives of young children, *marking an artificial boundary* which demands that development has reached particular key indicators; not being ‘ready’ to make the transition to school at a particular time can have detrimental effects on a child’s future learning and self esteem.

In particular, many practitioners feel that certain Early Learning Goals in communication, language and literacy and problem solving, reasoning and numeracy, are pitched at too demanding a level and that these tend to be pursued at the expense of children’s personal, social and emotional development (Brooker, *et al.* 2010). In parallel, several researchers (e.g. Blaustein, 2005) have highlighted the risks to developmental growth which occur through implementing early childhood programmes based on a directed-academic curriculum, often replacing essential hands-on learning activities with skill-based performance and rote-learning tasks. It is argued (Blaustein, 2005: p.3) that in emphasising rote-learning tasks within an early years classroom, a child is conditioned to concentrate on a very specific skill and use ‘lower’ parts of the brain such as the limbic system, and the insufficiently-developed cerebral cortex, to learn that skill. During this type of activity, it is argued, the child is forced to use parts of the brain that are immature, and although the child may be able to practise and acquire the skill, experts believe that the normal growth and development of the brain may be distorted by such practice (Healy, 2004: p.64) since the child will continue to use the lower part of the brain trained to perform the task even when the frontal cortex becomes more developed and suited to the task. There are also concerns that, in setting goals which are too demanding, there may be a tendency amongst teachers to label children as ‘behind’ too early, especially boys, bilingual children, and disadvantaged children. These concerns have been echoed by academics and early years professionals (eg. BAECE, 2009). In particular, many practitioners have concerns about the Early Learning Goals related to writing; again the perception overall was that the requirements for writing and rhyme are inappropriately demanding and formal for most children in the age group. Concerns about ‘teacher expectancy effects’, where children are possibly being unfairly viewed as ‘falling behind’ have been raised relating to summer-born children in particular (Sykes, *et al.* 2009), who do not achieve the writing goals by Year 1 and, on average, perform at a lower level than older children in their year group – as revealed in the EYFS Profile scores for 2009, for example (DfE, 2010), which showed that the writing goals were generally more challenging than other goals, especially for boys, with 62% able to hold a pencil and use it to write letters by the end of the EYFS, compared to 79% of girls.

*Long-term effects of pedagogies based on children’s natural learning processes*

Authentic measures of learning must be based not only upon the immediate assimilation of knowledge and skills, but also from longer-term retention and application. Here, the evidence suggests that pedagogies based on children’s natural learning processes are effective.

In a comparison of three pre-school models, namely child-initiated, academically-directed or a ‘combination’ approach, Marcon (2002) studied children who began school at age four to examine the influence of the different pre-school models upon later school success. The study examined report card grades, retention rates and special educational need diagnoses of 160 children at the end of their fifth year in school as they prepared to leave their primary school and 183 children at the end of their sixth year in school as they started in elementary school. Findings showed that by the end of the fifth year in school, there were no significant differences in academic performance attributable to the different types of pre-school models, but by the end of their sixth year in school, children whose pre-school model had been academically-directed achieved significantly lower marks in comparison to children who had attended child-initiated pre-school programmes. Children whose pre-school experience was child-initiated fared better than peers in the transition from primary to elementary school; not only were their grades significantly higher, but also their school performance improved or held constant in all but two subject areas (music and social studies) in spite of the increased academic demands of elementary schooling. Findings regarding later school success were mixed for academically-directed pre-school children; although fewer had been retained during the primary school years, children from this pre-school model were least successful in making the transition to elementary school. The grades of the academically-directed children declined in all but one subject area (handwriting) following the Year 6 transition. Children’s later school success appears to have been enhanced by more active, child-initiated early learning experiences. The author comments that ‘their progress may have been slowed by overly academic preschool experiences that introduced formalised learning experiences too early for most children’s developmental status’ (p.12). Moreover, she comments‘Children with academically-directed pre-school experiences may have missed out on the more integrative experiences of peers in other pre-school models’ (p.13).Further studies have revealed other benefits for children attending play-based pre-schools when compared with those of highly academic ones; lower retention rates and placement in special education in elementary school and a higher level of participation in extra-curricular activities in middle school (Marcon, 2001, 2000).

Other research demonstrates that models with substantial play components can have a positive and lasting effect on *later academic outcomes*. Some studies have shown that play includes thinking and social interaction that lead directly to academic learning. The frequency and complexity of block play, for example, was found to be associated with mathematical performance in high school (Wolfgang, *et al.* 2001); the researchers argued that early play with blocks directly enhances later mathematical thinking. Other researchers investigating other kinds of play, such as pretend play, report that it promotes children’s use of frequent and complex oral language (e.g. Cohen and Uhry, 2007). An interesting finding in some of the studies investigating play and elaborate language is that it is most pronounced for children with special needs. Studies have found that children with developmental and language delays, perceptual impairments and even autism speak more often and use more complex utterances when playing (eg. Craig-Unkefer and Kaiser 2002; Ingersoll and Schreibman, 2006). Children who are learning a second language also benefit from this kind of play; for example Riojas-Cortez (2000) found that Mexican-American four year olds learning English managed more elaborate sentence constructions in both Spanish and English in pretend play situations. There is evidence to suggest that this increase in language complexity during pretend play leads to language learning. In one study, the quality of play in the first year of a Head Start programme was found to predict formal language assessments in the second year (Mendez and Fogel, 2002). In the study by Lewis, *et al. (*2000), pretend play ability was found to be one of the best predictors of language ability in later childhood. Constantine (2001) found that pretend play experiences led to increases in children’s phonemic awareness – a well-known predictor of reading ability. Hanline, *et al.* (2009) found that early play abilities are related to reading scores many years later.

Moreover, children who attend pre-schools based predominantly upon models emphasising play rather than academic outcomes have been found to achieve higher scores on measures of self-regulation (e.g. Hyson, 2007). The findings of Barnett, *et al.* (2006) for example, who evaluated the effectiveness of the Tools of the Mind play-based curriculum by means of a randomised trial, revealed that not only were individual children’s executive functions enhanced, but also overall classroom quality improved as a result of this enhanced self-regulation by the participating children. This is discussed further in section 2.4. Several explanations have been proposed, including the fact that in play, children practise regulating their own behaviour in many different ways. Play enhances young children’s self-regulation and a wide range of research suggests that self-regulation is related to academic achievement (see, for example, Ponitz, *et al.* 2009).

Research on *social outcomes* of playful learning comes from the High/Scope project (Schweinhart, *et al.* 2005). By age 23, children who had attended play-based preschools were eight times less likely to need treatment for psychological or emotional disturbances and three times less likely to be arrested for committing a crime than those who went to preschools where direct instruction prevailed. It seems that social problems arise when policy and curriculum-directives fails to recognize that early education should be about the whole child; direct instruction does not *cause* social problems, but it seems that depriving children of the opportunity to develop socially is the unintended side effect.

The introduction of formal learning approaches to literacy flies in the face of research evidence emanating from several projects. One such recent study, (Suggate, 2007), that compared the abilities of children from schools in New Zealand, in which children do not start learning to read until they are seven, with children who start at the age of five, found that by the age 11 there was no difference in reading ability level. This parallels the results of the High/Scope Perry Pre-School project (Schweinhart, *et al.* 2005), in which outcomes of children who participated in different types of early years provision were compared. Researchers found that although direct instruction methods of teaching seemed to bring some children initial advantages in terms of their early reading and numeracy competencies, the High/Scope children who had been in ‘social constructivist’ learning environments showed significantly more positive results over the long term, whereas by the age of 15, the direct instruction group participants were showing signs of having become ‘disaffected’ with learning, presenting more psychological and social problems than other groups and reading only half as many books.

**Conclusion**

‘Schooling’ is a relatively recent social construction and, doubtless, serves certain social purposes well. In this section a range of approaches towards ‘curriculum’ and associated understandings of ‘child development’ over the early childhood period have been examined in relation to those held and implemented within the linked primary school system across a range of countries and educational approaches to the early years. The different conceptions and insights that policy-makers and educationalists hold across a range of countries and approaches have been highlighted and it has become clear that the views emerging in relation to the aims of the examined curricula and approaches can be placed on a ‘spectrum’. At one end are those forward-looking views of ‘curriculum’ emphasising the individual child and the devolving of adult authority. At the other end of the ‘spectrum’ are the politic, expedient views of education, which ultimately prioritise the needs of society rather than the individual (OECD, 2010).

Successful models of social constructivism pedagogy are in evidence in different countries, all over the world. The common factor amongst all social constructivist models of early years learning, is that they build upon children’s naturally powerful means of learning and emphasise adapting the to the individual needs of the children *in relation to their specific social contexts*. But the current teacher-led, subject-focussed KS1 curriculum, is seen by many early years educationalists as ‘fixed,’ with children being required to fit into it as it stands, with no room for compromise. Many early years educationalists argue that a more appropriate strategy is to adapt the curriculum to the developmental and experiential levels of the children who enter Year 1, whatever their cognitive and social skills. They suggest that if children are currently faring poorly there, rather than assessing the child as ‘inadequate’, the solution needs to be found in the school ‘offering’, including perhaps a recognition that the National Curriculum and its formal teaching methods, is inappropriate.

Thus, many early years educationalists suggest that what children need from their early schooling is the *opportunity to continue their learning through informal pedagogies* – ideally up until the age of seven – in an environment which offers rich stimulation and sensitive, supportive adults who know best how to provide for their emotional and cognitive needs. Rather than being focussed upon testing and assessment, early years education should provide a secure foundation for lifelong learning and should effectively draw out young children’s full potential as learners and citizens. The factors required in a social constructivist early years pedagogy incorporating the KS1 years, are discussed in the following section.

Part 2.4

The essential ingredients of a pedagogy for early childhood

**Introduction**

In its attempts to ‘raise standards’ the government has been encouraging the introduction of formal curricula at ever-earlier points in school. It has imposed a systematic programme for phonics teaching in Reception classes, for example, and it continues to emphasise delivery of aspects of the National Literacy and Numeracy Strategies. But the emerging developmental evidence discussed in section 2.1 suggests this ‘earlier is better’ approach in relation to children in the early years is misguided and will not make a difference in the long term. In contrast to the current focus in some Reception classrooms and certainly within KS1 classrooms, upon early, didactic instruction, current research into early emotional and cognitive development has clearly indicated that long-term well-being and success at school are most powerfully supported by children’s developing executive functioning and self-regulation abilities, and by the satisfaction of their needs for feelings of autonomy, competence and ‘relatedness’. Moreover, our understanding has improved in relation to the ways in which to optimize the brain's ability to benefit from teaching, revealing that effective instructional practice can be undermined by factors such as learning anxiety, attention deficits and poor recognition of social cues. All of these factors disrupt an individual's capacity to learn, and also have an effect on other learners in the same classroom (Goswami and Bryant, 2007). Deeper understandings of children’s cognitive, metacognitive and motivational development, combined with the empirical evidence from research into the characteristics of high quality pre-school provision, enables the distillation of several key ‘ingredients’ required for an effective pedagogical model of learning and teaching in the early years, discussed in this section.

We conclude this section, and indeed the report itself, by arguing that the provision of a mere ‘curriculum’ is inadequate for children in primary schools’ Reception, Year 1 and 2 classes. A more holistic and balanced approach is required for young children in these crucial years of development than a framework of curriculum content, to be ‘transmitted’ in lessons. We argue that a ‘pedagogy’ is required, a broader concept than ‘curriculum’ in that it also encompasses the physical and social environments of young children, placing equal value upon their care, upbringing and learning. Such a pedagogy needs to start from the interests, experience and choices of young children within their individual social contexts, and practitioners working within this approach will need to recognise that *what a child learns influences how they will develop*. The aims of such a pedagogy will not be so much content-related but process-related; there will need to be an emphasis upon supporting the learning of skills and acquiring dispositions which will be useful to the child in their life-long learning, not just to pass short-term standardised tests.

***Children need to interact with the environment***

It has become increasingly understood that early relational and environmental experiences have a direct impact on brain development (De Bellis, 2001; Gunnar, *et al.* 2006; Nelson, 2000) particularly during the first two years of life; the experiences undergone by the child seem to determine to a large degree which synaptic connections are maintained and which are selectively reduced through lack of use, suggesting that it is heavily dependent on the environment for its development (Goldberg, 2002). This finding, in combination with the idea that knowledge is *actively constructed* by the child – one of the central tenets of Piagetian theory - points to learning models for young children that incorporate opportunities for their movement and sensory-motor learning in order that they can develop cognitive cause-and-effect frameworks about the structure and mechanisms of the objects and people they encounter in the world. Neuroscience has revealed that because large networks of neurons in the brain encode learning cumulatively, cell groups that have been connected due to prior experiences will continue to be activated even when a particular aspect of sensory information in a particular experience is absent. This ability of the brain implies that if children are taught new information using a variety of their senses, learning will be stronger, as it will be represented across a greater network of neurons connecting a greater number of different neural structures, and accessible via a greater number of channels. This means that the child’s brain can in principle construct detailed conceptual frameworks from watching and listening to the world.

**Children constructing their own learning**

Piaget’s *constructivism* had emphasised the importance of the child *actively* engaging with the environment, and his followers in the educational sphere argued that the role of the teacher should be that of an observer and a facilitator. The general view of this approach was that attempting to *directly* teach or instruct young children was inappropriate, since doing so merely deprived the children of the opportunity to discover things for themselves. This view was partly a reaction against the simplistic 'Behaviourist' model that children only learnt what they were taught, and learnt only what they were rewarded for learning. Although contemporary thinking rejects the Piagetian conceptualisation of the role of the teacher as a passive observer, it acknowledges the underlying premise that children need to be *dynamic* in their learning, rather than simply receptive. Figure 1 illustrates the central function of interaction between child and environment in development.

Figure 1 **How children learn: the constructivist model (Whitebread, 2011)**

Perception

Selective attention

Rules, Patterns

Schema, Concepts

Information from the environment

Strategies

Hypotheses

Behaviour

Action

The central tenet within the *social constructivist* development model however, whilst still emphasising the pivotal need for *action* in the learning process, maintains instead, that learning begins in the social context, which supports children in the processes through which they *construct their own understandings*. The child’s initial sensory-motor representations, gleaned from interaction within the physical environment, become augmented by knowledge gained through action, language, pretend play and teaching as symbolic ones gleaned from interaction with other *people.* The inter-relatedness of social and cognitive processes in the child is fundamental and these ‘psychological tools’ or ‘sign systems’ (Vygotsky, 1978) thus bring together psychological functioning *within* the child.

The importance of learning from others is explained by the social constructivist notion of the ‘zone of proximal development’ (ZPD). To recap, when faced with any particular task or problem, children (or any learners) can operate at one level on their own, described as their 'level of actual development', but when supported or 'scaffolded' by an adult or more experienced peer, their learning can go further, a level described as their level of ‘proximal, or potential development', which necessarily differs between children. Vygotsky’s recognition that learning can change the child’s developmental level suggests that *teachers need to discover each individual child’s zone of proximal development and support learning to that level in order for teaching to bring optimal benefits*.

**Teachers ‘scaffolding’ learning; the essence of ‘pedagogy’**

As described in section 2.1, the work of developmental psychologists has revealed that young children are adept at learning through mechanisms such as imitation and deferred imitation, for example. They have a strong predisposition towards social interaction with adults, aptly characterised as ‘proto-conversations’ (Trevarthen and Aitken, 2001) and ‘mutual attention’, for example. In the early days, adults can support this development by closely monitoring the infant’s gaze, looking where they are looking, and using this focus of attention as the basis for further interaction. This willingness on the part of the adult to respond to the child’s initiation of attention-focus needs to be continued into the early years of schooling as it forms the basis of Vygotsky’s ‘ZPD’ model and thereby has implications for today’s teaching and learning models in schools, particularly in relation to the role for the teacher.

The teacher’s role is not as an instructor transferring knowledge into the minds of children but rather as a 'scaffolder' (a metaphor suggested by Jerome Bruner and colleagues – Wood, *et al.* 1976) supporting, encouraging and extending the child's own active construction of meaning and understanding. A characterisation of ‘scaffolding’ which supports and develops modelling and imitation behaviours is useful for teachers within a social constructivist learning framework, defined by Gergely, *et al.* (2007) as ‘pedagogy’ (p.140), *where a cultural knowledge transfer via collaborative learning in the zone of proximal development takes place*. Further, they highlight that such a teaching-and-learning system depends upon an assumption about ‘teachers’, namely that they are dependable and caring sources of commonly-shared cultural knowledge. In Part 1.1, we saw that amongst the key ‘ingredients’ effective in the ‘teacher’ repertoire emerging from Schaffer’s (2004) review of child-adult interactions in relation to language learning, *sensitivity* and *responsiveness* within joint-attention episodes were crucial. So, an effective scaffolder engages the interest of the child, simplifies the task if necessary, highlights critical features of the task, models key processes or procedures and, perhaps most importantly, sensitively monitors the child’s success with the task in order to withdraw support when the child can proceed independently.

Shared activity between child and adult has also been suggested for the effective use of the ZPD in teaching by the neo-Vygotskyians in Russia (e.g. Karpov 2005) who maintain that verbal support is not enough to optimise learning and that *cooperative activity* is required to promote the child’s acquisition, mastery and internalisation of new content. They suggest that such shared activity should begin with the adult explaining and modelling the procedure or material to be learned; the adult should then involve the child in joint performance of this procedure or material, thereby creating the zone of proximal development of a new mental process; the child’s mastery and internalisation of the material should then be guided until the adult can begin to withdraw. The importance of *incremental* ‘scaffolding’ input from teachers has been reinforced by recent neuroscience findings (e.g. Csibra and Gergely, 2006) which demonstrate that neural networks develop over time, and are not suddenly ‘restructured’ by one learning experience, although certain experiences may result in previously distinct parts of the neural network becoming connected, or in inefficient connections that were impeding understanding being pruned away. Such findings are clearly of interest to early childhood educators. This biological need for learning to be incremental provides direction for teaching methods; deep understanding of a given educational domain is required in order for a teacher to present the cumulative information in the optimal sequence for the new learner (Goswami, 2008).

**Language as a ‘tool of thought’**

Language plays a crucial role in development, as children progress through being supported by others, initially guided by an adult, to learning how to do things independently. Since learning emerges from such social interactions, the ways in which the adult supports the child are influential. Language development is critical to cognitive development, and shows marked variation amongst children in the early years. For a variety of reasons, children enter school having been exposed to significantly different language experiences and often with very different-sized vocabularies. Hence gesture is often an important vehicle for communication and some children reveal more knowledge through gesture than language (Goldin-Meadow and Singer, 2003). Both gesture and language are symbolic systems, in essentially enabling children to create a distance between themselves and the immediate situation.

Research in recent years has investigated the processes by which adults support children’s learning and highlighted the importance of language as a tool for the processes of learning, regarded as a process of *internalization* over time. As adults encourage, instruct, ask questions, simplify the task, remind children of the goal, make suggestions, model to emphasise the key points, give feedback and so on, they obviously employ language as the key medium with which to convey ideas and actions. As the child begins to understand the steps modelled and articulated by a sensitive adult, they become able to talk themselves through the task using self-commentary or ‘private speech’. This represents a crucial bridging mechanism between external ‘social speech’, produced in the context of social interaction with another person, and fully-formed ‘inner speech’, which we all use as adults to help us to structure and keep track of our thoughts. It appears predominantly in young children up to the age of seven- or eight-years and then gradually fades, as the capability for ‘inner speech’ is established (Winsler and Naglieri, 2003). Children thus become progressively able to fully self-regulate using internal speech or, in other words, abstract thought.

**Creating classroom conditions to support children motivating themselves**

Teachers support children’s autonomy when they listen carefully, when they position learning resources and seating arrangements in such a way as to encourage activity rather than passivity, when they create opportunities for children to talk and to work in their own way, when they treat children’s perspectives with respect, when they praise progress and encourage effort when it occurs, when they give progress-enhancing hints, when they give sincere answers to children’s questions. The research evidence from studies related to self-determination theory (SDT) (see Reeve, *et al.* 2003, for example) reveals that *autonomy-supportive* teachers support children’s apparent self-determination and active engagement in the classroom through fostering children’s inner motivational resources; through using straightforward, non-controlling language; through communicating the value to be gained by the child by partaking in tasks and activities which may seem uninteresting (and through providing rationales for required behaviours); and through acknowledging and accepting the validity of children’s sometimes negative emotional responses.

*Teachers fostering natural motivations*

Rather than relying on external regulators such as incentives, directives, consequences, deadlines or compliance requests, when teachers nurture children’s inner motivational resources, they attempt to find ways in which to build teaching activities around the children’s interests, preferences, sense of fun and challenge, competencies and choice-making. In essence, they try to build upon children’s natural inclinations rather than socially engineer non-self-determined types of extrinsic motivation.

*Teachers aligning classroom communication with children’s inner motivations*

Teachers who think about the language they use in communication with children in the classroom are able to align their perception of children’s inner motivations to the requirements and opportunities presented by classroom activities, on a moment-by-moment basis. In this way, through messages which are informational and suggestive of flexibility, rather than pressurising, coercive, rigid and controlling, children are persuaded of the benefits of joining in, rather than being pushed into compliance.

*Teachers communicating the value of activities which seem uninteresting*

Justifying investment of effort in, or providing a rationale for, activities which may not appear to be intrinsically motivating, or which are even blatantly unappealing (e.g. tidying up) is a means by which autonomy-supporting teachers can help children to generate self-determined motivation by articulating why an undertaking is really a useful thing to do. Controlling teachers generally fail to communicate this otherwise hidden personal utility which justifies the investment of effort (see Reeve, *et al.* 2002).

*Acknowledging and accepting children’s negative emotions*

When a teacher communicates their acknowledgement and acceptance of the fact that sometimes children will not want to conform to classroom practices, rules, logistical and grouping requirements, for example, they reveal an understanding and support of the children’s perspectives and rights to express their (perhaps negative) emotions as a valid reaction to some of the classroom demands and structures. On the other hand, denying the validity of such reactions in children, or attempting to counter them, reveals an intolerance in the teacher who is, in effect, communicating that the child’s reaction is unacceptable and needs to be adjusted in order to conform to the teacher’s ‘acceptable’ viewpoint – thereby denying the child’s autonomy to express the emotions they experience. By accepting children’s sometimes negative emotional responses, the autonomy-supporting teacher is also enabled to guide children in ways to manage these emotions productively, thus supporting rather than undermining their sense of autonomy and emotional competence.

**(vi) Creating ZPDs through play: the role of adults in supporting children’s play**

‘Play’ in itself creates a zone of proximal development, in which the more expert ‘other’ may well be another child, indeed a peer, rather than an adult. It is evident that the development of many core brain functions is brought about naturally for most children within play situations, including cognitive flexibility, inhibition and working memory, and capacities for problem-solving, reasoning and planning. Likewise, play affords opportunities for socio-emotional development where skills such as turn-taking, sharing and negotiating are required. Since children are so highly motivated to play, teachers have an influential role in creating zones of proximal development via play that supports their learning (Karpov, 2005). Not only through taking advantage of children’s natural motivation to play can practitioners scaffold through providing learning areas and specific activities to encourage the development of various competencies and cognitions, but also, since children show more advanced imagination when they imitate the pretence of others, adults can provide support through role play. Bigelow and colleagues (2004) have shown that adult scaffolding of imaginative play with toddlers supports symbolic development, for example.

Practitioners can create a ‘zone of proximal development’ to scaffold the educational and developmental outcomes of play for young children in several ways. In addition to enhancing the quality of children’s play through various kinds of modelling behaviours and through providing useful resources, as described above, adults may become involved in play on different levels. Fundamentally, however, children are only likely to engage in the most complex forms of play, involving risk-taking and facing challenges, when they feel emotionally safe and secure. Developing a *close and supportive relationship* with each child is therefore crucial before an adult can understand what the child’s ‘next’ step, challenge or risk might be. As described above, the adult’s sensitive and timely responding to children’s interests and enthusiasms are key to building this knowledge. Studies of children of diverse ages in the early years engaged in a wide variety of tasks reveal that adult encouragement, emotional support and scaffolding predict increased effort and more successful performance when children attempt challenging tasks on their own (e.g. Landry, *et al.* 2002; Neitzel and Stright, 2003). Moreover, it is important that the relationship is built through *a range of experiences* within the setting; when adults provide a range of opportunities for the children to experience, the occasions for children to utilise their natural learning strategies and develop self-regulation are optimised.

*Guided play*

Several studies have illustrated that, certainly for some aspects of learning, children’s play can be enhanced by sensitive adult involvement where the children’s active playfulness is supported. Guided play (see Singer, *et al.* 2006) within educational contexts, quite distinct from free play, is characterised by the setting up of a structured play environment around a general curricula goal, containing objects, toys and materials which are designed to stimulate children’s natural curiosity, exploration, and play (Hirsh-Pasek, *et al.* 2009; Schweinhart, 2004; Berger, 2008). Teachers then participate in children’s play by co-playing with them, asking open-ended questions and suggesting ways to explore materials that might not have been thought of by the children. Learning is child-directed and not adult controlled and children are the active drivers of the learning. According to Hirsh-Pasek and Golinkoff (2009), this mixture of goal-oriented experiences with whole-child learning offers a new alternative – *guided play* – that meshes core curricula and playful pedagogy. Golinkoff and colleagues conclude from their experimental studies and a range of reviews examining the relative impact on learning (studies included observational and correlational approaches, in addition to strict randomised experimental procedures), that guided learning is beneficial in supporting children’s learning of vocabulary, early numeracy and literacy and concept acquisition (e.g. shape and space). It seems that the results were uniformly positive: children’s learning through free play and guided play is as good, and often better, than their learning under direct instructional methods. A review of the literature makes this point (Hirsh-Pasek, *et al.* 2009).

*Adults scaffolding ‘play projects’ (‘structuring’*)

Practitioners may support the implementation of ‘play projects’ based on the ideas and interests of the children, perhaps arising from an authentic classroom or community issue or problem – or upon a narrative focus, for instance. Drake and Sherin (2009) provide many inspiring illustrations of these play projects (also known as structuring – Manning and Sharp, 1977) involving well-loved stories, children’s interests, problems to be solved and so on.

*Peer scaffolding*

Often, appropriate levels of scaffolding come about simply through adults providing appropriate equipment and materials, to inspire and support young children to engage in the various types of play together and thereby naturally face some of the challenges which arise. Indeed, in some situations, the adult may need to acknowledge the effectiveness of peers *scaffolding each other*, rather than becoming directly involved, or attempting to manage the play themselves. *A* series of studies by Howard and colleagues (see Howard, 2010) investigating young children’s perceptions of play in their educational settings provides evidence of the hidden messages perceived by children and conveyed by practitioners about the nature of play. Some of the children clearly had developed quite different perceptions from the adults in the settings, about what constitutes play. It seems that children tended to categorise activities as ‘play’ or ‘not play’ based on the amount of choice to be had, where the activity was situated, whether they involved books, whether they were ‘enjoyable’ and whether an adult was present. Clearly, adult involvement in children’s play, if it is to be productive, is a complex role and requires considerable skill and sensitivity. Fundamental to any involvement, it seems, is a clear understanding of what children are learning through play and how the quality of their play experiences can be enhanced or undermined by the presence of the adult.

*Games with rules* help children understand the nature of ‘rules’, and encourage socio-emotional learning arising from sharing time and space and seeing events from others’ perspectives. Through *playing with objects, c*hildren start to explore the world and experiment with objects in efforts to understand their physical nature. This type of play helps to develop physical skills as well as thinking, reasoning and problem-solving and within pretend play, objects take on meanings for the child in their imagination, irrespective of their function as real objects in the perceptual world. This enables the child to begin to manipulate their understandings of information and thereby deepen their brain’s capacities for thinking. *Physical play* including ‘*rough and tumble’* play, is effective in supporting children’s emotional and social development; *exercise play*, such as running, climbing, ball and racket games and *fine motor play*, including construction and cutting and sticking activities, are vehicles for children to develop gross and fine motor skills, improve their hand-eye co-ordination and develop muscular strength and stamina, as well as increasing powers of concentration and perseverance.

*Socio-dramatic play*

Socio-dramatic play aids the development of imagination and thinking skills. Within Vygotsky’s writings, play – and especially imaginary play – is valued primarily as a channel for cognitive development, in which learning occurs through the formation of mental representations primarily revealed through action as children create pretend ‘worlds’, delivered through language, gesture and symbols. Within symbolic play, objects take on meanings for the child in their imagination, irrespective of their function as real objects in the perceptual world. In essence, within pretend play scenarios, the child has the opportunity to manipulate their cognitive understandings of information, and form a ‘*metarepresentation*’ (Leslie, 1987). In so doing, the child differentiates between their various mental representations; this ability to discriminate between various cognitive processes constitutes metacognition, the capacity to reflect upon and catalogue mental representations, so that both current reality and past reality are kept in mind together. Much of young children’s imaginary play is with others. Language is important, as social partners can use language to help young children to understand imaginary situations.

‘Socio-dramatic’ play is also linked to the development of an understanding of emotions (Lindsey and Colwell, 2003; Galyer and Evans, 2001) and an understanding of mental states (false belief and others’ perspectives) as well as a ‘theory of mind’, which is important for developing psychological understanding of others – becoming able to ‘read the mind’ of another ‘character’ in the imaginary world or drama. Often children engage in a mental state dialogue during dramatic play - the kind of language used also provides a medium for reflecting on and knowing about their own thoughts and those of others.

As suggested by Vygotsky, language is not only a major means through which culturally adaptive cognitive processes are transmitted to children, but also the primary vehicle for self-regulation. Pretend play helps children to check their impulses and manage their behaviour, requiring as it does, a recognition of and adherence to rules, thereby aiding the development of self-regulation (particularly inhibition). Several studies reveal that partaking in make-believe play fosters self-regulation (eg. Elias and Berk, 2002; Berk, *et al.* 2006; Fantuzzo, *et al.* 2004; Lindsey and Colwell, 2003; Verbruggen and Logan, 2009). Socio-dramatic play is not really ‘free play’ as it may at first appear upon casual observation. As Vygotksy (1978) pointed out, it is precisely in pretend play situations, and of their own volition, that children acting within a role put aside their innate desire to act impulsively (eg. seizing the desired toy, or holding tight to something they want) in favour of ‘rule-based’ behaviour. He termed this ‘the paradox of pretence’ (p.100) – where the child subordinates their immediate desires to the rules of the play, which becomes the child’s ‘new form of desire’ (p.100) in that it responds to the child’s need to become an accepted member of the play (i.e. the child’s ‘new’ culture).

Evidence suggests that the constructions of shared imaginative play with another child and the discourse about inner states that is a key part of this play, depend on the *quality of the relationship between the children*. Several studies have demonstrated that frequency of *friends’* shared pretend play is correlated with the quality of the relationship, together with smooth and successful communication, social competence and pro-social actions, low levels of conflict and divergent thinking (e.g. Lloyd and Howe, 2003; Singer and Singer, 2005). The frequency of shared pretend between *young siblings* has also been related to the affectionate quality of their relationship (Dunn, *et al.* 2002). However, adult involvement in children’s pretend play is complicated.

**Teachers supporting children’s learning of language and language for learning**

Supporting early language development is clearly important in itself, if teachers wish to help children to become articulate adults. But further, if children are to build upon prior knowledge in joint ZPD interactions with adults in classrooms, they need to remember and articulate what they have already learned. Children’s memories for their own experiences are supported when a carer or teacher adopts an elaborative dialogic style to support making sense of aspects of experience; adapting conversation with young children leads to more organised and detailed learning and memory (Bryant and Goswami, 2007). These findings are suggestive with respect to the kinds of dialogues in classrooms that will most aid retention and understanding. It is widely recognised that sharing a relevant vocabulary and encouraging children to articulate their ideas in discussion are key to helping them develop capacities to think and construct their own understandings about the world. What also seems to be crucial, are opportunities for children’s active engagement in processes of interpretation and transformation of new experiences. New tasks and ideas are most valuable to a child when linked to contexts with which they are familiar and which carry meaning for them (Donaldson, 1978). Sylva and colleagues (2004), in the large longitudinal study of factors leading to effective early years educational provision, have shown that high quality pre-school experience can significantly impact upon a range of intellectual and personal gains, and that a key element in high quality provision appeared to be the occurrence of episodes of ‘sustained shared thinking’ between adults and children.

*Dialogic pedagogy*

A range of recent and current classroom-based research has supported this view and has begun to identify in more detail the specific elements of a successful ‘dialogic’ pedagogy appropriate for children in the early years of education (Mercer and Littleton, 2007). Neil Mercer and colleagues (Littleton, *et al.* 2005), for example, have identified three qualitatively different kinds of talk in young children’s discussions, characterised as *disputational* (unproductive disagreement), *cumulative* (uncritical additions to what has already been said) and *exploratory* talk (involving active joint engagment with ideas, where assertions and counter assertions are supported by explanations, justifications and alternative hypotheses). They have further developed the ‘Thinking Together’ approach, which incorporates tasks to support children’s developing ability to engage in exploratory talk in group discussions, including activities to help children construct their own agreed ‘rules for talk’ and to use these to help them structure productive joint activities. Interestingly, one key element which emerges from this work, and the work of Howe and colleagues (Howe, *et al.* 2007) is that the children working in the group must attempt to agree on the solution to the problem under discussion. Actual agreement does not appear to be as important as the attempt to achieve this. Littleton, *et al.* (2005) showed that young children could make significant strides in their ability to argue their case and provide explanations for their views, and that there were measurable gains in both the quality of their language and their non-verbal reasoning skills.

In a further piece of research conducted by Mercer and Whitebread (2011), with five- and six-year-old children in Year 1 classrooms, it has been shown that this kind of approach can also encourage young children’s self-regulation, measured both by their teachers’ observational assessments and by their ability to reflect upon and talk about their performance on particular tasks. A recent American study (Vallotton and Ayoub, 2011) of 120 toddlers in New England established a similar relationship between vocabulary size (which was distinguished from general ‘talkativeness’) at ages 14, 24 and 36 months and observed self-regulatory behaviour, such as the ability to maintain attention on tasks, and to adapt to changes in tasks and procedures. The key point emerging from this whole area of research, which has far-reaching implications for models of learning in the early years, is that a primary and fundamental goal must be to extend the language knowledge and skills of young children, as the evidence is now overwhelming concerning the significance of this area of development to learning in its broadest sense.

*The development of literacy*

Several studies have confirmed that pre-schoolers involvement in pretend play is linked to favourable literacy outcomes. For example, in a longitudinal study, Bergen and Mauer (2000) found that children who had high levels of play with literacy materials in preschool were likely to be spontaneous readers of place signs and have greater pretend verbalizations in a ‘town-building’ activity at age 5. Literacy develops out of language understanding; the cognitive prerequisites for reading depend upon a child’s language development, perceptual development (particularly their abilities to differentiate sounds) and spatial development. The *Early Talk* and *Every Child a Talker* programmes instigated in 2007 by the government in England aimed specifically to support young children's development in early language and communication, through the development of the knowledge and skills of early years practitioners who scaffold their earliest speaking and listening skills. Further, for writing, requisites include physical fine motor control (a pincer grip for holding a tool with which to make marks) and the cognitive ability to attend for periods of time. Some four years olds will possess these prerequisites upon joining a Reception class, whereas others will not yet have developed them. Teachers may scaffold development in these areas by supporting the child’s awareness of syllables and rhyme for example, important for learning about phonemes, or by providing opportunities for the strengthening of hand and finger muscles via appropriate activities related to the individual child’s interests.

Snow, who has been foremost in research into literacy for many years (2006) notes that the two most established predictors of literacy ability in early childhood are vocabulary size and phonological awareness. However, as she also notes, direct instruction of vocabulary or phonology may not be the most productive approach. Young children’s learning is enormously enhanced by new information being placed in contexts that are of current interest to them and are, therefore, in a real sense, meaningful. Of course, it is perfectly possible to introduce the phonology of the written form of the language to young children in ways they find interesting. Given this, Snow cites evidence (from a meta-analysis of a considerable body of research) that about 20 hours attention to phonological awareness is sufficient for almost all children (Ehri et al, 2001) and that supporting children to write, with their own attempts at spelling, supports phonological awareness as effectively as explicit curricula.

**Teachers supporting the development of executive functions, metacognition and self-regulation**

Central to development are the executive functions of the brain, which encompass cognitive flexibility, inhibition and working memory, as well as more complex functions such as capacities to problem-solve, reason and plan. The human brain is inherently designed to build these core mechanisms, and according to Vygotskian theory, this development can be furthered within supportive environments. Self-regulation is the primary characteristic of these higher mental functions, supporting the qualities of creativity, flexibility and self-control, all of which begin to develop during early childhood, qualities which are crucial for success not just in school, but in life (Diamond and Lee, 2011).

Both gesture and language are symbolic systems, in essentially enabling children to create a distance between themselves and the immediate situation. This is an important step towards enabling cognition itself to become the object of thought and reflection – a process called metacognition. Notions deriving from Vygotsky’s theoretical ideas and from the work of ‘social’ psychologists interested in understanding human motivations, have combined to provide explanations of how children’s developing cognitive capacities along with their motivation to act metacognitively, can be enhanced by the ‘scaffolding’ support of an adult and the intrinsic rewards arising from successful performance.

Research based on Vygotsky’s theoretical model of the development of self-regulation has also begun to show how metacognitive learning might occur and how it might be encouraged in educational contexts. An extensive literature, concerned with developing and evaluating educational interventions intended to promote metacognitive and self-regulatory abilities in young children, has confirmed Vygotsky’s position and shown that they are indeed highly teachable. A meta-analysis by Dignath, *et al.* (2008) of self-regulation intervention studies in Primary schools, reveals that such interventions show consistently positive results. Typically, these interventions have involved teachers making metacognitive and learning strategies explicit, and encouraging children to reflect upon and talk about their learning. Several pedagogical techniques of this kind have been investigated and developed. These include:

* ‘co-operative groupwork’ (Forman and Cazden 1985): a range of techniques involving children in collaborative activities which oblige them to articulate their own understandings, evaluate their own performance and be reflective about their own learning
* ‘reciprocal teaching’ (Palincsar and Brown, 1984): a structured procedure which involves teachers modeling the teaching of a particular task to children who are then asked to teach the activity to their peers
* ‘self-explanations’ (Siegler, 2002): an instructional practice which requires children to give ‘how’ and ‘why’ explanations about, for example, scientific phenomena or the events in a story, and then asks children to give explanations of their own and an adult’s reasoning (where the adult says what they think and then asks the child why they think the adult thinks that, or how they came to that answer or conclusion)
* ‘self-assessment’ (Black and Wiliam, 1998) a range of pedagogical ideas involving children’s self-assessment of their own learning, including, for example, children making their own choices about the level of difficulty of tasks to be undertaken, and selecting their best work for reflective portfolios
* ‘debriefing’ (Leat and Lin, 2003): a range of techniques for reflecting upon an activity or piece of learning including ‘encouraging pupils to ask questions’, ‘making pupils explain themselves’ and ‘communicating the purpose of lessons’.

A consistent finding has been the importance of children having opportunities to reflect on the effectiveness of the strategies they used. Young children, in particular, will often show that they are capable of using a strategy and indeed, their performance improves when they do so. However, unless they consciously attribute their improved performance specifically to the use of the strategy, they are unlikely to transfer its use to similar tasks.

***Interventions shown to foster executive function development in young children***

The early years are the optimal period through which a child’s motivation and emotion should foster and complement their executive function processes, contributing to self-directed learning and resulting in the child developing a sense of individual autonomy and a sense that they are an effective, capable learner. Children who have poor executive functions (and/or whose executive function performance is impaired by stress or anxiety) will have problems paying attention in class, completing tasks, and inhibiting impulsive behaviours. School may be less enjoyable for them because they find compliance with school demands difficult and perhaps because their teachers tend to become frustrated with them. It might be anticipated, therefore, that children who begin school with weak executive functions might become increasingly resistant to school and schoolwork, put less effort and self-investment into school, and drop out at much higher rates than expected (Vitaro, *et al.* 2005). Conversely, those children with better emotional, attentional, and behavioural regulation encounter positive feedback from teachers, develop relatedness, competencies and autonomy, thereby enjoying their schooling experience. Alexander, *et al.* (2001) and O’Shaughnessy, *et al*. (2003) have documented the widening gap between the trajectories of children who start with better self-regulation and executive functions, and those who start off with worse. Findings reveal an increased divergence over each year as the positive feedback loop for the former, and the negative feedback loop for the latter, progressively enlarges what might be relatively small differences at the outset, producing an achievement gap that widens each year.

For this reason, there has been a focus in recent work targeting pre-school age children, particularly since executive functions have been shown to be more strongly associated with early success at school than are IQ test scores (Blair and Razza, 2007). A series of specific interventions have been shown to support the development of executive functions in young children; successful programmes tend to involve repeated practice and progressively increase the challenge to executive functions. The objective behind such interventions is to foster a child’s creativity, adaptability, self-control, and self-discipline, not just for school learning, but for life-long learning, in which abilities will be required in all sorts of circumstances to ‘think laterally’, give a measured rather than an impulsive response, to persist and stay focused. A range of activities have been shown to improve children’s executive functions: computerized training, non-computerized games, and specific school curricula. Although not yet very plentiful, the existing literature intended to support children’s development in these skill areas supports the plausibility of improving self-regulation through relatively short-term interventions.

*Computerised training*

Two promising studies, one with a preschool sample (Rueda, *et al.* 2005) and the other with a school-age sample with attention deficit hyperactivity disorder (Klingberg, *et al.* 2005), have demonstrated the effects of intensive computer-based training on certain of the aspects of executive function. An important direction for future work will be the replication with diverse populations of effects seen in these studies and assessment of the generalisability of training effects to academic ability.

It seems that a short amount of specific computerised training can improve specific cognitive processes. For example, Posner and colleagues (Rueda, *et al*. 2005; Rueda, *et al.* 2005) designed a suite of computerised training tasks as an intervention to train general attention (visual), with a particular focus on executive control in 4 year olds and over; strong improvement in executive attention and intelligence was found in children aged 4-6 years. The intervention design was replicated and enhanced by Rueda, *et al.* in 2008. The findings showed that in this study, the attention training benefited brain activation during the children’s performance of a ‘conflict’ task and the pre-school children’s scores were improved on the abstract-reasoning tests.

Training for older children with ADHD in computerised tasks to target working memory was seen to be successful in research carried out by Klingberg and colleagues (2005). The training consisted of working memory tasks implemented via a computer programme called the *RoboMemo* (CogMed, Sweden), including visuospatial and verbal tasks, the difficulty of which automatically increased incrementally over five weeks. Significant effects were found for the visuo-spatial treatment as well as verbal working memory, response inhibition and comlex reasoning. The application of the programme for typically developing children is being investigated (Olesen, 2005).

A further example of computerised training of attention relating to auditory attention, the *FastForWord* programme, targets oral language skills through intensive computer-based activities with acoustically modified speech and non-speech sounds (Tallal, 2004). The programme was further tested with a group of children with selective auditory attention conditions (Steven, *et al.* 2008). In relation to the control groups of children with no computerised training, the trained groups showed larger increases in the effects of attention on neural processing following the training. This would imply that the neural mechanisms of attention might be trainable i.e. that the development of attentional abilities is at least in part the consequence of experience, and that the required experience can be easily provided within educational contexts.

*Non-computerised training*

A novel approach to cognitive skills training was carried out by Lipina and colleagues amongst deprived three-to-five-year old children in Chile (2005, 2007). The *Programa de Intervencion Escolar* not only included cognitive training, but also encompassed a teacher training programme, nutritional advice and supplements, and social and health counselling for parents. The programme lasted 32 weeks (twice a week) and involved a battery of tasks calling for executive skills. Findings revealed that the cognitive training in conjunction with folic acid and iron supplementation was most effective in improving cognitive performance in healthy children from deprived homes – particularly in planning tasks and spatial working memory. Identical patterns of improvement were seen in attentional and flexibility task results, indicating a generalisation effect (Lipina and McCandliss, 2007).

‘*Pay Attention’* (Kerns, *et al.* 1999) is an attention – training package based on a group of tasks that exercise different components of attention, including sustained, selective, alternating and divided attention, focussing on familiar, age-appropriate concepts such as same-and-different, relative size, comparisons of visual features, and basic counting, using both visual and auditory stimuli. When the package was tested with children, it was found that those who received the training performed better than matched control groups on a number of untrained indicators of attention, such as the day-night Stroop task, and academic efficiency.

*Classroom curricula*

*Tools of the Mind* (*Tools)* is a curriculum for preschool and kindergarten developed by Bodrova and Leong (2007) based on work by Vygotsky (1978). According to the authors, the *Tools* curriculum is designed to support teachers to create a positive classroom climate focussing on enhancing children’s self-regulation through every activity, and especially through dramatic play. Vygotsky emphasized the importance of social pretend play for the early development of cognitive skills, since during imaginative play, children must inhibit acting out of their role, remember their own and others’ roles, and react flexibly as their friends improvise. Such play exercises all three core executive functions and is central to *Tools*. Children are taught how to support emerging cognitive skills through teacher ‘scaffolding’ with visual reminders (e.g. a picture of an ear to remember to listen) and private speech. As children’s cognitive skills develop, ‘scaffolding’ is gradually removed, gently pushing children to extend the limits of what they can do. *Tools* was evaluated against another high quality programme based on direct instruction (Diamond, *et al.* 2007); five-year-olds outperformed the control group children on executive function measures which taxed inhibition, working memory and switching. Thus, the program with more play produced better executive functions than the one with more direct instruction.

*New technologies; how do they relate to a socio-constructivist model of early years education?*

The concept of using computerised programmes to ‘train’ young children may be seen as conflicting with the essence of social pedagogy, with its emphasis upon relationships and interactive learning. Critics of computerised learning in early years classrooms point out that electronic screens do not provide any of the essential ingredients desired in a socio-cultural model of teaching and learning, namely face-to-face interaction with parents or carers, interaction with or manipulation of the physical world, creative problem-solving and play, for example (Barkham, 2009). They point out that at the very least, screen-based activities prevent children spending time on other, more brain-building activities which will enhance both their cognitive and social development.

Modern technologies are particularly influential because they rely on one of our most powerful genetic biases, namely that as humans we have a preference for visually presented information. Television, film, video, and most computer programmes are visually oriented and therefore attract and maintain the attention of young children. In the USA, by three-months of age 40 per cent of infants are regular viewers of television, DVDs or videos, and by the age of two, this number increases dramatically to 90 per cent (Zimmerman, *et al*. 2007). Nearly two-thirds of children under 2 spend two hours a day in front of the screen (Ridout, *et al*. 2003). There is growing concern over the sheer number of hours children now spend looking at a screen (Sigman, 2007a, 2007b) primarily because such modern technologies require *passive reactions* from children – hence, it is argued, there is an ‘opportunity cost’ for a young child sitting for hours passively watching television, for example, as they will not be receiving a combination of real-life emotional, social, cognitive, or physical experiences.

Several empirical studies emphasise the risks associated with this passivity and emphasise the detrimental effects of screen-based education for very young children. For example, a study published by Zimmerman, *et al. (*2007) found that the use of such programmes might actually delay two year olds’ language development. ‘When learning from videos is assessed in comparison to equivalent live presentations, there is usually substantially less learning from videos’ (Anderson and Pempek, 2005: p.517). Interestingly, several government departments of health around the world have felt the need to issue guidelines within the past five years, advocating that very young children should not watch television or DVDs (Sigman, 2007: p.268). For example, the US Department of Health and Human Services (2010) recommended that children aged birth-to-two-years should view no television or videos on an average weekday, in parallel with declaring their aim to encourage children and adolescents aged between two and 18 years to limit their viewing of television and videos (or playing video games) to less than two hours per day. In 2009, the French Government banned French TV channels from airing any programmes aimed at children under three years, stating that television viewing harms young children’s development and poses certain risks, including encouraging passivity, delayed language acquisition, over-excitement and inability to fall asleep at bedtime, as well as problems with attention (Sigman, 2007: p.268).

Results of several studies support the hypothesis that childhood television viewing may contribute to the development of attention problems and suggest that the effects may be long-lasting (e.g. Landhuis, *et al*. 2007). A study by Christakis, *et a.l* (2004), for example, found that early exposure to television during critical periods of synaptic development in the brain is associated with subsequent attentional problems. The study of 2,500 children found that early television exposure was associated with attentional problems at age seven, which was consistent with a diagnosis of ADHD. Children who watched television at ages one and three had a significantly increased risk of developing such attentional problems by the time they were seven. For every hour of television a child watched per day, there was a 9 % increase in attentional problems (Christakis, *et al.* 2004). The more recent study by Landhuis and colleagues (2007) investigated a possible long-term association between television viewing in childhood between the ages of five and 11, and attention problems in adolescence. Findings, which could not be accounted for by early-life attention difficulties, socio-economic factors or intelligence, revealed that childhood television viewing is associated with attention problems in adolescence, such as having a short attention span, poor concentration and being easily distracted. Another controlled study (Johnson, *et al.* 2007) with young people aged 14 to 22 years also concluded that frequent television viewing during adolescence may be associated with increased risk for development of attention problems, learning difficulties, and adverse long-term educational outcomes. Youths who watched 1 or more hours of television per day at mean age 14 years were at elevated risk for poor homework completion, negative attitudes toward school, poor grades, and long term academic failure. Youths who watched three or more hours of television per day were the most likely to experience these outcomes. Moreover, youths who watched three or more hours of television per day were at elevated risk for subsequent attention problems and were the least likely to receive postsecondary education (Johnson, *et al.* 2007)

However, not all modern technologies require a passive approach from the child, of course. Computers allow and promote interaction; the child can control the pace and activity and make things happen, repeating an activity again and again if they choose. Observational studies of young children playing with adventure games or problem-solving software on computers have also frequently noted the extent to which they promote social interaction and productive talk, with children working together in twos or threes to solve the problems together (Siraj-Blatchford and Whitebread, 2003; Whitebread, 2006). As reviewed above, it is also the case that particular software programs can provide specifically targeted support to children in developing particular skills (e.g. executive functioning skills such as memory and attention). Further, advances made in the development of digital technologies generally over recent years offer highly active opportunities to the young learner. The opportunity to use cameras and tape recorders and video cameras in the classroom enables children to develop through hands-on, real-time activities, thereby deepening their understanding of their world through the use of modern tools. Indeed, it can be argued that there are many positive social and emotional qualities to modern technologies in the early years classroom.

Moreover, a child’s social and emotional needs may be addressed through the use of appropriate technologies. Perry and Kneas (2009) describe benefits for a child’s classroom self-esteem and basic cognitive processing which can be brought about through computers. Even very simple, non-specialized software can be used to good ends. Word processing can alleviate problems of low self-esteem in cases where a child has fine motor skill delays (meaning perhaps that their handwriting is slow and looks careless), resulting in low esteem about their work; word processing their work means they can demonstrate learning on papers that are clean and neat and they can learn how to spell words correctly. In addition, there are a number of specialized programmes that allow children with certain information-processing problems access to a multimedia presentation of content so that they can better understand and process the material. They are simultaneously able to see the written words and see a visual image and hear the sounds; combining these sensory-modalities helps some children to more efficiently internalize information about a topic (Perry and Knaes, 2009)

Evidence emerging from recent research might even suggest that to ignore or downplay the existence and importance of popular culture, media and new technologies in young children’s lives is counter-cultural and therefore undermines the social pedagogy tradition, with its emphasis upon learning being related to context. A recent study by Marsh and colleagues (2005) offers a variety of perspectives from educators and parents into the changing worlds of very young children in contemporary society in the UK. It provides evidence of the extensive nature of children’s engagement with popular culture, media and new technologies and finds that they negotiate the new digital world with competence and confidence. Their evidence shows that young children are immersed in practices relating to popular culture, media and new technologies from a very early age. Indeed, ‘*They are growing up in a digital world and develop a wide range of skills, knowledge and understanding of this world from birth*’ (Marsh, *et al.* 2005: p.75). This learning is supported in the home by parents and wider family members and children engage in family social and cultural practices which develop their understanding of the role of media and technology in society (Marsh, *et al.* 2005). Parents report that their young children generally lead well-balanced lives, with popular culture, media and new technologies playing an important, but not overwhelming role, in their leisure activities.

The Marsh study (2005) found that children’s engagement with media is generally active, rather than passive, and indeed promotes play, speaking, listening and reading. Moreover, their involvement with media and new technologies, in line with the observational evidence from classrooms mentioned above, seems to be mainly social, not individual in nature, usually taking place with other family members. In light of this evidence therefore, it can be argued that the computerised programmes and digital equipment such as that discussed in the previous section, designed to support the development of a child’s executive functions are effective precisely *because* they are built upon a socio-cultural model of engagement with the child’s immediate home context. If technological designs are based upon an understanding of the interrelations between cognition and emotion involved in any learning and of the importance of *process* as much as content when supporting young children’s learning, the new technologies may well scaffold learning in ways that are essentially socio-constructivist. There are many technologies that acknowledge that young children need to be active; they can learn cognitive and emotional regulation skills, and academic content best through actively participating in activities, including various forms of play. These technologies recognise that a focus on developing emotional, attentional and behavioural self-regulation in children within the early years period is likely to be a more effective strategy in adjusting to the social and emotional demands of school life and success throughout the school years than a prime focus on acquiring academic content (such as a dominant focus on teaching the basics of early literacy and maths).

The Marsh study is unequivocal in pointing up the need for educators to respond to the challenge represented by this advance in technologies within society, by developing curricula and pedagogy which enable children to build on their digital ‘funds of knowledge’ (Moll, *et al.* 1991) and provide them with opportunities to engage fully with the technological, social and cultural demands of the ‘knowledge economy’ (Luke and Carrington, 2002). Indeed, the study concludes by suggesting that

not to do so is to assign our youngest children to an education which, although generally successful in preparing children for encounters with the written word on paper, is not yet as successful in ensuring that they are proficient with the multimodal, multimedia texts and practices which permeate everyday life in the twenty-first century (Marsh, *et al.* 2005: p.75).

As parents and educators consider the future, it must be acknowledged that technological advancement is an unstoppable everyday reality; schools and homes are in the midst of a major sociocultural quantum shift (Perry and Knaes, 2009) and technologies are revolutionizing the world our children will live in. The challenge, therefore, is to develop pedagogies balancing appropriate skill-development with technologies, with the core principles and experiences necessary to educate healthy children. Introducing screen technology too early to children will not enhance their health or learning and indeed may cause damage. There is no doubt in the minds of educationalists around the world that the technologies that most benefit young children are those that are interactive and allow the child to develop their curiosity, problem solving and independent thinking skills, but pedagogies for young children must crucially take into account the appropriate and safe *timing* for the introduction of technological experience in the classroom and *how it is combined* with other classroom experiences. Technologies can be used to enhance curriculum and learning experiences for children but most importantly, young children need real-life experiences with real people to truly benefit from available technologies. There is no reason why the core elements of self-determination theory (SDT), namely the development of autonomy, competence and relatedness, may not still be at the heart of an appropriate child-centred pedagogy incorporating computerised learning programmes and other emerging technologies. As in all teaching and learning experiences within the social constructivist model, parents and teachers must act as facilitators, scaffolding children’s learning through technology as in all other areas of learning. Children need an integrated and well-balanced set of experiences to help them grow into capable adults capable of handling social-emotional interactions as well as intellectual challenges. A true socio-constructivist approach would hold that, while technology can help practitioners teach children, in the end, it is from their significant others that children learn.

**Fostering emotional and social regulation in young children**

A persuasive body of research on ways to support young children’s emotional, behavioural and academic regulation has emerged over recent years, with implications for early years pedagogy. A considerable number of evidence-based approaches are available to guide professionals in efforts to support the development of children's emotional and social skills in schooling environments; current best practices recommend that programmes should begin in the preschool and continue through the school-age years (and beyond) and that social skill development should be woven into activities throughout the day in a way that encourages consolidation (Sheppard*, et al.* 2008; Zins, *et al.* 2007). Moreover, it is not simply by preventing behaviour problems that emotion-related programmes are thought to influence academic achievement. Indeed, behaviour problems have relatively small associations with academic outcomes (Rabiner, *et al.* 2004; Duncan*, et al.* 2007). Through promoting social–emotional competence and thereby helping to facilitate the development of executive function and self-regulation, and ultimately learning, these programmes are understood to affect school achievement. Researchers and clinicians have not generally focused on treating emotional problems in children younger than school-age, until relatively recently (Campbell, *et al.* 2000) however.

*Social and emotional learning programmes (SEL)*

In 2008, Payton and colleagues undertook a meta-analysis of the impact of school-based SEL programmes on children. The review, which included 317 studies involving 324,303 school children age five-13 years, reported that evidence-based programmes are intimately linked to improving children’s academic performance. Social and emotional learning (SEL) is defined as the process through which emotions are recognised and managed, healthy relationships are established, positive goals are set, ethical and responsible behaviours are developed and negative behaviours are avoided (Payton, *et al.* 2000). Within the context of schools, SEL involves the integration of two interwoven elements to promote successful school transition and development, namely the development of socio-emotional skills and supportive environments to scaffold this learning.

Within SEL programmes, social and emotional skills are explicitly taught, practised and applied to diverse situations through evidence based classroom programmes such as *Zippy’s Friends* (Clarke and Barry, 2010) and PATHS *(Promoting Alternative Thinking Strategies*) (Domitrovich and Greenberg, 2000) so that children internalise them and integrate them into their repertoire of behaviours. These skills and attitudes help children feel motivated to succeed, to believe in their success, to communicate well with their teachers, to set academic goals, to organise themselves to achieve these goals and to overcome obstacles. The second element is the development and maintenance of a safe, supportive learning environment in which children feel respected and cared for, and the adults model SEL skills appropriately, providing opportunities for children to practice and apply them both in class and throughout the school. According to Greenberg and colleagues (2003) and Zins and colleagues (2004), high performance expectations, classroom structures and rules, communication styles, school organisational and climate and openness to parental and community involvement are all necessary for the successful creation of a such a supportive learning environment. Overall, compared to students in the control groups, children participating in SEL programmes demonstrated improvements in multiple areas including enhanced social and emotional skills, improved attitudes towards self, school and others, enhanced positive social behaviour, reduced conduct problems (misbehaviour and aggression), reduced emotional distress (stress and depression) and improved academic performance (test scores and school grades). Moreover, several reviews of universal social and emotional learning (SEL) programmes found evidence of greater effectiveness in the early years (ages two-to-seven-years) than in older children (Tennant, *et al.* 2007; Browne, *et al.* 2004).

*Promoting Alternative Thinking Strategies* (PATHS) (Domitrovich and Greenberg, 2000) trains teachers to build children’s competencies in self-control, recognizing and managing feelings, and interpersonal problem solving. Since young children often experience and react to emotions before they can verbalize them and often react impulsively without top-down control, training in verbalizing their feelings and practising conscious self-control strategies are emphasized within the PATHS programme – such as waiting before acting and self-talk. For example, when children get upset, they should stop, take a deep breath, say what the problem is and how they feel, and construct an action plan. Teachers receive special training and weekly consultations. They are taught techniques to generalize skills learned during PATHS lessons to other contexts during the school day. Recently a randomised trial was implemented in some US Head Start pre-schools for low-income children (Bierman, *et al.* 2008), using a version of PATHS called the REDI (Research-Based, Developmentally Informed) Programme. The intervention seemed to particularly benefit children who started the year with low levels of behavioural inhibitory control, such as difficulties in delaying motor-responses and in sustaining engagement with a task. Bierman and colleagues (2008) suggest that these children may have been able to compensate for their inabilities to exert control over cognitive functions through support from REDI in promoting their social-emotional competence and aggression control.

Another such program is the *Incredible Years* (Webster-Stratton, 1998), which combines parent, teacher, and child training activities with the goal of reducing the onset of conduct problems in young children. A final example is the *Good Behaviour Game* (Ialongo, *et al.* 2001), which is a behaviour modification program designed to prevent impulsive and aggressive behaviour in the classroom by improving the teacher's ability to define tasks, set rules, and discipline students within the context of a game in which students work in teams.

*Social and Emotional Learning in relation to Teachers’ perspectives*

Taken together, the findings discussed above would suggest that to optimise benefits, schools should embrace their role in promoting SEL from an early age and adopt a spiral approach that builds on what has been learned as children progress through primary school. It seems that ‘whole-school’ approaches, involving changes to the school environment, personal skills development in class, and parental participation, are on the whole more effective than purely classroom-based programmes (Barlow, *et al.* 2005).

It may be that the power of SEL programmes resides not so much in the activities themselves, but in how the programmes bring about changes in the *teachers’* attitudes and behaviours, which then translates to improved, positive teacher-student relationships and affects children’s everyday interactions and behaviours in the classroom. As such, perhaps it is the teachers who need professional, emotional, and autonomy support in making adaptations that fit each of their classrooms and teaching philosophies, so that they ‘own’ the knowledge and skills and apply them as part of their teaching ‘style’ or identity (Deci and Ryan, 2000). Changed teacher behaviour, which emerges in part through the implementation of SEL programmes, is perhaps the key to creating positive social and emotional contexts for learning; evidence from programmes such as Incredible Years would suggest so (Webster Stratton, 2011). Such an approach was instigated in the Chicago School Readiness Project (CSRP), in the USA, which provided Head Start teachers with extensive behaviour-management training and suggestions for reducing their stress. The strategies encouraged, as part of the teachers’ repertoire, included the implementation of clearer classroom rules and routines, the rewarding of positive behaviour, and redirection of negative behaviour. The CSRP intentionally did not train teachers in academic instruction or provide curricula on academic subjects. It emphasized developing verbally-skilled strategies for emotion regulation. Mental health consultants conducted stress-reduction workshops for teachers all year. Children with the most extreme externalizing behaviours received one-on-one counselling. Raver, *et al.* (2008), conducted a randomized- control trial with 18 of 35 Head Start classrooms assigned to CSRP methods. Results showed that the CSRP teachers provided better-managed and more emotionally supportive classrooms than those of control teachers and, moreover, the executive functions (attention, inhibition, and impulsivity) of four-year-olds in the CSRP classes improved over the year and significantly more so than did those of the control group children as well as demonstrating improvements in their vocabulary, letter naming, and maths.

**Conclusion**

When children are supported to acquire the ability to persevere in working at a task, the skills to focus and maintain their attention, and the capacity to hold information in mind long enough to associate one concept with another, they can acquire ‘academic’ content. When they believe they are competent as learners and when they are motivated, they will exert effort to acquire ‘academic’ content. However, by contrast, if they are led to memorise content without having the skills to apply appropriate strategies by themselves, their continued progression is at risk. In the same vein, if children find the learning environment hostile or the content to be difficult, they are less likely to exert sufficient effort. Early education, which transmits academic content to children but leaves them detesting or frustrated by school, or nervous or fearful in the school environment, has let the children down. Those children who perceive that they have autonomy, competence and who have good relationships within the school environment are the children who will become effective learners and well-adjusted citizens.

Deeper understandings of children’s cognitive, metacognitive and motivational development, combined with the empirical evidence from research into the characteristics of high quality pre-school provision, have enabled the distillation of several key ‘ingredients’ required for an effective pedagogical model of learning and teaching in the early years as examined in this section. The copious research evidence, relating to a wide range of essential factors which are seen to positively enable children’s self-regulatory development in early years settings, is unequivocal; the evidence suggests overwhelmingly that children’s development is fundamentally enhanced in contexts where they experience emotional warmth and security, feelings of being in control of the events and activities in which they engage, where they experience appropriate levels of cognitive challenge and ample opportunities to speak and reflect about their own learning (Whitebread, 2012). Playful contexts, sensitively supported by adults who are clear about their purposes and role, are powerfully and perhaps uniquely suited to providing these conditions in which young children thrive. Sensitive practitioners holding high expectations of children, enabling safe, warm classroom environments and providing opportunities for multi-faceted play, are just some of the essentials for a child-centred pedagogy.

Underpinning the approach is a broadened conceptualisation of ‘school readiness’ which regards it as a condition of schools as much as individual children. Regardless of the age for school entry, children will vary considerably in their social, emotional, and intellectual skills upon arrival. Conceptual and pragmatic changes need to be made therefore to the ‘offer’ from schools. In particular, pedagogies need to be designed to complement the natural learning capacities of young children in order that they can fulfil their developmental potential. We would, therefore wish to suggest that a much greater service would be provided to children if the focus was more on making schools ready for children, than on making children ready for school.

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