Getting it right in the Early Years Foundation Stage: a review of the evidence

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Foreword

Background to the Report: Proposed Changes to the EYFS

The Early Years Foundation Stage (EYFS) sets standards for the learning, development and care of children from birth to 5 years old. All schools and Ofsted-registered early years providers must follow the EYFS, including childminders, preschools, nurseries and school reception classes. The Early Years Foundation Stage (EYFS) framework gives all professionals a set of common principles and commitments to deliver quality early education and childcare experiences to all children. Following an independent review of EYFS evidence and practice for the DfE in 2011 (the Tickell Report, 2011), the EYFS statutory framework was revised in 2012 to create three Prime Areas of Learning and four Specific Areas of Learning, rather than the previous six areas of learning. It also introduced three Characteristics of Effective Teaching and Learning: "playing and exploring – engagement", "active learning – motivation" and "creating and thinking critically – thinking".

In July 2018, the DfE published what they presented as a review of the Early Learning Goals (ELGs) but was in fact a comprehensive rewrite of the EYFS Statutory Framework, including the Educational Programmes for each Area of Learning. Many in the early years sector were surprised that such an extensive process of change had been embarked upon with very little engagement with sector representatives and experts.

The DfE claimed a mandate to review the ELGs and the Early Years Foundation Stage Profile based on the Primary Assessment Consultation (PAC) launched in March 2017 – although they subsequently acknowledged this was contentious, given the understandable lack of input from the early years sector to that consultation. The PAC sought views about various aspects of primary assessment, including whether to introduce a baseline assessment measure in reception for primary school accountability[1] and how the Early Years Foundation Stage Profile (EYFSP) could be improved to better assess child development and school readiness at age 5. The majority of PAC respondents supported the commitment to retain the EYFSP but wanted to see key improvements made.

Neither the scope of the PAC nor the responses to it provided a mandate to review the EYFS as a whole. The government response published on 14th September 2017 set out key proposals to refine the descriptors underpinning the ELGs. This placed a particular focus on communication and language, maths and literacy, and ensuring better alignment with the year 1 curriculum. There was also an intention to look at options for reducing administrative burdens on teachers through improving the guidance to support the EYFSP and the moderation process. This commitment led to a set of draft ELGs being published in 2018, as indicated above, as the initial stage of a process, due to include a public consultation, following an evaluation of the pilot of the revised ELGs later in 2019. The DfE subsequently also began a process of redrafting the non-statutory guidance for the EYFS.

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[1] As a follow up to the PAC, the government is intending to make reception baseline assessment statutory for all schools beginning in 2020, with the stated aim in due course of removing the statutory tests at the end of Year 2. However, the baseline assessment at the start of reception is part of the system of primary school accountability, and not linked to the delivery of the EYFS or the statutory assessment at the end of reception. There is therefore a potential disconnect between two key aspects of policy impacting on the EYFS as a whole, and specifically on the reception year.

The EYFS was last extensively revised in 2011 so a further review is timely. However, the DfE's decision to start by reviewing the end of the phase assessment before reviewing the curriculum, rather than vice versa, is in tension with normal expectations regarding the process of curriculum and assessment design. Moreover, while the sector is strongly in support of the government's stated intentions to reduce workload and improve children's language and communication skills, especially among the most disadvantaged children, there was a strong sense that these aims were put at risk by the poorly re-drafted Statutory Framework. It was felt by some in the sector this showed a lack of understanding of how the framework is used by practitioners, and of the meaning and significance of how the current version was carefully constructed and written.

The Sector's Response: Working Together in Coalition

In response to this situation, a group of early years sector bodies have worked together to communicate their concerns to ministers and ensure that any changes to the EYFS benefited as fully as possible from the knowledge and expertise within the sector. This will ensure the EYFS remains a world-leading and well-respected framework and fit for purpose for daily use by early years practitioners and teachers. In keeping with the spirit of co-production by which the original EYFS was developed, a coalition was formed of organisations representing all parts of the early years sector, comprising Early Education, Early Childhood Forum (ECF), Early Childhood Studies Degrees Network (ECSDN), Early Years Alliance, Keeping Early Years Unique (KEYU), Montessori St Nicholas, National Children's Bureau (NCB), National Day Nurseries Association (NDNA), Professional Association for Childcare and Early Years (PACEY), Sector Endorsed Foundation Degrees in the Early Years (SEFDEY), TACTYC: the Association for Professional Development in the Early Years, the British Early Childhood Education Research Association (BECERA) and the British Association for Educational Research (BERA). Other bodies with observer status included unions representing early years interests from the teaching workforce and school leadership (NAHT, ASCL, NEU, NASUWT) and the Teaching Schools Council.

The coalition welcomed a subsequent invitation from DfE for Early Education to be included on its EYFS Advisory Panel, and for opportunities for ongoing discussions between officials and members of the coalition. The coalition is keen to support the DfE's review of the EYFS. Ongoing dialogue will ensure officials and ministers are fully aware of the issues involved in revising the EYFS and that they make best use of the sector's freely offered expertise to ensure any such revisions achieve their intended aims, and are clear, workable and in the best interests of children.

The Rationale for the Research

The coalition noted that much of the success of the current EYFS rested on two factors. First, that it was firmly based on research evidence and second, that it had been drawn up, and later reviewed, through a process of co-production with the sector which ensured widespread buy-in from practitioners. Coalition members regretted that government appeared not to be following a similar model with the current review. They determined to take a lead on ensuring a review of recent evidence was available to government and the sector, and to ensure that the views of practitioners were involved wherever possible in the process of reviewing the EYFS. In order to achieve this, the coalition commissioned two pieces of research:

- **A literature review -** To ensure that any changes could be tested against currently available research evidence, the coalition established a sub-group to lead on the

commissioning of a research review. This was to look at the evidence published since the Evangelou et al (2009) review which had provided the bedrock for the Tickell Review.

- **A practitioner** survey - To give practitioners a voice in the process, the coalition also commissioned a survey of practitioners' views of the current EYFS which received over 3000 responses.

The results of the former are published below. The latter will be published in a later report.

Review Brief

The review brief was set by the research sub-group (see Acknowledgements below for membership of the group). The brief was to focus on recent evidence, defined as from the last 10 years, about early learning, pedagogy and curriculum content in the years from birth to five in order to explore how far the Early Years Foundation Stage and its underpinning structure, content, outcomes and pedagogic approaches remained congruent with this evidence and what areas might need to be adjusted in the light of this evidence. The review was intended to identify key research published since the evidence review (Evangelou at al, 2009) which was undertaken as part of the Tickell Review of the EYFS (DfE, 2011). Due to the short timescale, a decision was taken to focus on secondary research reviews rather than primary sources.

The research review findings and next steps

The members of the coalition welcome this comprehensive research review and the action points set out by the researchers. We have also included recommendations and key points from the coalition at the end of this document (p56). These identify key points we would wish to take forward in discussion with government and the sector about future changes to the EYFS.

Getting it right in the EYFS is about children's right to being and belonging as well as becoming. Children in any form of early years provision should be nurtured, enabled to play, explore and discover themselves and the world around them. The EYFS should continue to provide a framework for all early years providers to give children the best possible start, based on the best available evidence. We hope government will make use of this research report to ensure the EYFS continues to be a world-leading framework which is respected and endorsed by the whole early years sector.

The coalition: *Early Education*
Early Childhood Forum (ECF)
Early Childhood Studies Degrees Network (ECSDN)
Early Years Alliance
Keeping Early Years Unique (KEYU)
Montessori St Nicholas
National Children's Bureau (NCB)
National Day Nurseries Association (NDNA)
Professional Association for Childcare and Early Years (PACEY)
Sector Endorsed Foundation Degrees in the Early Years (SEFDEY)
TACTYC: the Association for Professional Development in the Early Years
British Early Childhood Education Research Association (BECERA)
British Education Research Association (BERA)

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- Sue Allingham, Trustee, Early Education
- Verity Campbell Barr, Chair, Early Education
- Paulette Luff, BERA
- Beatrice Merrick, Chief Executive, Early Education
- Chris Pascal, CREC
- Sacha Powell, Froebel Trust
- Carolyn Silberfeld, Chair/Director, Early Childhood Studies Degrees Network
- Nancy Stewart, TACTYC
- Penny Tassoni, President, PACEY
- David Whitebread, University of Cambridge

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Executive Summary

Background

The [Early Years Foundation Stage (EYFS)](#) sets standards for the learning, development and care of children from birth to 5 years old. All schools and Ofsted-registered early years providers must follow the EYFS, including childminders, preschools, nurseries and school reception classes. The [Early Years Foundation Stage (EYFS) framework](#) supports an integrated approach to early learning and care. It gives all professionals a set of common principles and commitments to deliver quality early education and childcare experiences to all children. The EYFS was last extensively revised in 2011, and was felt to be in need of further review. The DfE has subsequently begun to look at how it might redraft the non-statutory guidance for the EYFS. In this context, this review of recent evidence (last 10 years) about early learning, pedagogy and curriculum content in the years from birth to five in order sets out to explore how far the Early Years Foundation Stage and its underpinning structure, content, outcomes and pedagogic approaches remain congruent with this evidence and what areas might need to be adjusted in the light of this evidence. This report sets out the findings of this review.

Review Focus and Methodology

The overarching research questions were developed to specifically address current government initiatives and priorities:

How far does the rationale for the prime and specific areas and the characteristics of effective learning reflect current knowledge about early learning and teaching?

What aspects of the EYFS are affirmed and what need adjustment based on evidence from the last 10 years?

Sub-questions included:

1. What areas/aspects of learning are particularly important for children to develop in the EYFS, and specifically at different stages/ages from birth to five years?
2. What outcomes should a child be achieving by the end of the EYFS that will provide a basis for lifelong learning and long term wellbeing?
3. Which outcomes in EYFS predict good levels of attainment through primary school and beyond?
4. What are the implications of the ELGs (EYFS outcomes) for ensuring responsiveness to individual children's characteristics and needs?
5. What teaching content is particularly beneficial to supporting good levels of development in the prime and specific areas of learning?
6. What pedagogic approaches best supports a child to achieve a good level of development throughout the EYFS and enables them to achieve their potential?

The evidence review was conducted using the principles of Rapid Evidence Assessment (REA). The review drew on identified secondary research reviews from 2009 onwards. Other relevant sources were identified by steering group members as the review progressed and included a call for evidence from a wide range of professional associations and groups representing diverse academic disciplines. Relevant studies in

these reviews were categorised according to their quality and relevance and the highest scoring evidence was prioritised.

Headline Findings

The research reviewed for this paper, and presented under the 6 sub-questions, shows that there is recent research evidence which informs these questions, but that it is of mixed quality and relevance. Some of the review sub-questions have a strong bank of evidence to draw on, whilst for other questions it is harder to locate quality evidence that is relevant.

> **The evidence suggests that there is no substantiated case for the EYFS Statutory Framework to be significantly changed. However, less advantaged children continue to underachieve and this perpetuates the gap as they progress into primary schooling. Given this context, a closer examination of the recent evidence reveals that with some modifications, particularly in relation to the guidance on Communication and Language Development, and giving greater prominence to the Characteristics of Effective Teaching and Learning, these children might be better served.**

The key messages from the review and suggested modifications to the current EYFS are summarised below.

Action Points

1. There is evidence to suggest that there should be some modifications to the current EYFS Statutory Framework to give greater prominence to the Characteristics of Effective Teaching and Learning and Personal, Social and Emotional Development to ensure the foundational skills, understandings and knowledge in these areas are securely in place before more advanced, challenging learning is introduced to the children.

2. The evidence suggests that the Characteristics of Effective Teaching and Learning, which support the development of self-regulation and positive learning habits, should be seen as a more central aspect of the EYFS Statutory framework.

3. The current EYFS framework which highlights Personal, Social and Emotional Development (PSED) as a prime area of learning is supported by recent evidence and the current EYFS Early Learning Goals should be extended to cover a wider range of learning dispositions and capacities, including self-regulation.

4. It is particularly important that EYFS children have a confident grasp of oral language and communication before they are moved on to grasp the skills of written forms of language.

5. There should be more focus on conceptual knowledge in Mathematics and practical rehearsal of Mathematical, Communication and Language, and Literacy skills in real world contexts which have meaning for the child.

6. The current EYFS requirements on teaching and learning approaches is supported by recent evidence but the value of a balanced teaching approach which incorporates play-based and relational pedagogic approaches, alongside more structured learning and teaching, needs to

be recognised more fully, especially when children are in transition between EYFS and Key Stage 1.

7. Some additional guidance for teaching Understanding the World is needed to ensure that the development of citizenship and children's rights are foregrounded in classroom practice, and more attention is given to the teaching of science and the implications of children growing up in a digital age.

8. It is suggested that more time and attention should be given to supporting creativity (along with problem-solving) in children's development as a capacity which underpins all areas of learning.

9. There is a need for more encouragement and support to be given to the teaching of Expressive Arts and Design within the curriculum, as this area of learning enhances mental health, wellbeing and underpins many other aspects of learning.

10. It is evident that the features of effective pedagogic practice for disadvantaged children are congruent with those found to work for all children and there is no evidence that a different or more intense teaching approach is required. There is strong evidence that these children, as do their peers, need more opportunities for play, language consolidation and extension and opportunities to develop their wider learning dispositions and capacities.

11. To effectively support children within diverse cultural and social norms, for example, recent immigrants, the diversity of learners must be recognised within all teaching content. Teaching content needs to equally recognise life experiences, including acknowledging the different needs of summer born children, and a broader span of social and behavioural competencies.

Recommendations from the coalition

The coalition recommends that government act on the evidence in the report when conducting its review of the EYFS, and that any changes should be based on the following key principles:

1. **Recognising the central importance of the Characteristics of Effective Teaching and Learning** which has been emphasised by the growing body of research on self-regulation and executive function.
2. **Supporting the current emphasis on the Prime Areas within the EYFS as particularly crucial and time sensitive in the early years**, and their foundational nature in relation to all later learning, including the importance of communication and language skills as a basis for literacy, and in turn the importance of literacy in children's long-term attainment and social and cultural life.
3. **Acknowledging the premise that all Areas of Learning are interconnected, demonstrating the holistic nature of young children's development**.
4. **Noting there is no evidence to support giving mathematics and literacy greater emphasis than any other areas of learning within the EYFS**.

Part One: Background, Methodology and Quality of Evidence

1. Introduction

1.1 Setting the Context

The Early Years Foundation Stage (EYFS) sets standards for the learning, development and care of children from birth to 5 years old. All schools and Ofsted-registered early years providers must follow the EYFS, including childminders, preschools, nurseries and school reception classes. The Early Years Foundation Stage (EYFS) framework supports an integrated approach to early learning and care. It gives all professionals a set of common principles and commitments to deliver quality early education and childcare experiences to all children. Following an independent review of current EYFS evidence and practice for the DfE in 2011 (the Tickell Report, 2011), the EYFS statutory framework was revised in 2012 to create three prime areas of learning and four specific areas of learning, rather than the previous six areas of learning. It also introduced three characteristics of learning: 'playing and exploring – engagement', 'active learning – motivation' and 'creating and thinking critically – thinking'.

The Primary Assessment Consultation (PAC), was launched by the DfE in March 2017, and sought views about various aspects of primary assessment, including on how the EYFSP could be improved to better assess child development and school readiness at age 5. In July 2018, the DfE published what they presented as a review of the Early Learning Goals (ELGs) only, but was in fact a comprehensive rewrite of the EYFS statutory framework, including the educational programmes for each area of learning.   In this context, this review of recent evidence (last 10 years) about early learning, pedagogy and curriculum content in the years from birth to five in order sets out to explore how far the Early Years Foundation Stage and its underpinning structure, content, outcomes and pedagogic approaches remain congruent with this evidence and what areas might need to be adjusted in the light of this evidence. This report sets out the findings of this review.

1.2 Scope of Review

The review brief was set by the research sub-group of the coalition (see Foreword). The brief was to focus on recent evidence (last 10 years) about early learning, pedagogy and curriculum content in the years from birth to five in order to explore how far the Early Years Foundation Stage and its underpinning structure, content, outcomes and pedagogic approaches remain congruent with this evidence and what areas might need to be adjusted in the light of this evidence. The review is intended to identify key research published since the evidence review (Evangelou at al, 2009) which was undertaken as part of the Tickell Review of the EYFS (DfE, 2011). Due to limited time and resources the review has focused on:
- existing reviews and secondary sources, including any that could be accessed via health, social care and other related disciplines
- robust, peer reviewed research papers

- the years from birth to five
- all areas of learning, both prime and specific, and the Characteristics of Effective Learning
- pedagogic approaches

The review design was conducted according to systematic protocols which ensured that the sources retrieved were both high-quality and relevant to the research questions. This meant that documents found to be of high quality could be prioritised during the analysis. The assessment of evidence was bounded by a number of key search parameters which include:
1. Review questions
2. Sources/databases
3. Search terms/strings
4. Quality criteria
5. Inclusion/exclusion criteria

1.3 Review Questions

The overarching research questions were developed to specifically address current government initiatives and priorities:

How far does the rationale for the prime and specific areas and the characteristics of effective learning reflect current knowledge about early learning and teaching?

What aspects of the EYFS are affirmed and what need adjustment based on evidence from the last 10 years?

Sub-questions included:

1. What areas/aspects of learning are particularly important for children to develop in the EYFS, and specifically at different stages/ages from birth to five years?
2. What outcomes should a child be achieving by the end of the EYFS that will provide a basis for lifelong learning and long term wellbeing?
3. Which outcomes in EYFS predict good levels of attainment through primary school and beyond?
4. What are the implications of the ELGs (EYFS outcomes) for ensuring responsiveness to individual children's characteristics and needs?
5. What teaching content is particularly beneficial to supporting good levels of development in the prime and specific areas of learning?
6. What pedagogic approaches best supports a child to achieve a good level of development throughout the EYFS and enables them to achieve their potential?

2. Methodology

2.1 Review Focus

In answering the research questions the focus was primarily on:
- Children from birth to five years of age;

- Evidence published in the period 2009-2019;
- English, UK and international evidence;
- Both quantitative and qualitative evidence meeting international standards of scholarship;
- Evidence in peer reviewed journals.

2.2 Methodological Approach and Design

The evidence review was conducted using the principles of **Rapid Evidence Assessment (REA)** and is in line with the government guidelines: http://webarchive.nationalarchives.gov.uk/20140402164155tf_/http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment

The REA was rigorous and explicit in method and thus systematic but made concessions to the breadth/depth of the process due to short time frames and limited resources. The research process included an agreement on review questions, a structured literature search with a clear protocol, an appraisal of the quality of evidence, and a synthesis of the evidence base. The review drew on identified secondary research reviews from 2009 onwards with additional relevant research identified by the partner organisations. Relevant studies in these reviews were categorised according to their quality and relevance and the highest scoring evidence was prioritised.

The review process had 6 phases:

Phase 1: Review Scoping
An initial scoping meeting between the review team and the coalition research sub-group to define remit of the review by identifying search terms, selected databases or data sources, inclusion/exclusion criteria, quality criteria.

Phase 2: Literature Search
A systematic literature search based on agreed search terms of literature published since 2009

Phase 3: Literature Assessment and Selection
A review of titles and abstracts to exclude non-relevant literature using agreed inclusion criteria and quality criteria. During the retrieval process relevant sources were also coded by theme to develop an overview of the evidence base from which to begin analysis.

Phase 4: Evidence Evaluation
Initial literature was screened against research questions and any necessary adjustments to search terms, inclusion and quality criteria were made.

Phase 5: Evidence Analysis
Full text screening and selection of relevant literature according to agreed inclusion and quality criteria. Reading and analysis of studies/data, recording strength of evidence from which conclusions were drawn. Extraction of key study information and findings was undertaken.

Phase 6: Finalisation of Report
Production of a draft report which was subject to iterative feedback from steering group colleagues to complete a final written report.

2.3 Selection of Sources/Databases

There were three main primary and secondary data sources:

1.   Indexes and search engine databases:

- Academia Edu
- Applied Social and Abstracts
- Arts and Humanities Citation Index
- Australian Education Index
- British Education Index
- Canadian Education Index
- CERUK
- Cochrane Library
- EBSCO
- Education Abstracts
- EMBASE
- EPPI-Centre's specialist register of research

- ERIC
- Google and Google Scholar
- International Bibliography of the Social Sciences
- Linguistic and Language Behaviour Abstracts
- PsycINFO
- Scopus
- Social Science Research Network
- Social Science Citation Index
- Social Services Abstracts
- Sociological Abstracts

2.   Current DfE/OfSTED projects:

- EPPE/EPPSE Technical Papers
- SEED Technical Papers

- Bold Beginnings Report

3.   Existing reviews:

- The 100 Review (Pascal and Bertram, 2017)
- BERA-TACTYC Early Childhood Research Review 2003-2017 (BERA, 2017)
- Ofsted Annual Review: Early Education and Social Disadvantage (Pascal and Bertram, 2012)
- Bold Beginnings (OfSTED, 2017)
- The Birmingham Early Years Review (Bertram and Pascal, 2017)

- DfE Review of Evidence on EYFS Early Learning Goals, Teaching Content and Pedagogy in Reception Year (Pascal, Bertram and Peckham 2018)

Other relevant sources were identified by steering group members as the review progressed and included a call for evidence from a wide range of professional associations and groups representing diverse academic disciplines.

2.4 Selection of Search Terms/Strings and Structured Search Methods

The following search terms were used and combined with AND/OR to make search strings:

- Early Years Foundation Stage/EYFS/EYFSP
- Birth to five year olds
- Child outcomes/development
- Areas of learning
- Early years knowledge, skills, understanding
- Long term development / outcomes
- Life long learning
- Early years curriculum/ framework
- Communication and language
- Vocabulary
- Verbal Development
- Early literacy
- Pre-literacy
- Early reading
- Early writing
- Early mathematics
- Maths
- Numeracy
- Spatial ability
- PSED

- Characteristics of effective learning
- Self-regulation
- Executive functioning / function
- Physical development
- Fine motor skills
- Understanding of the world
- Understanding the world
- Technology
- Expressive arts and design
- Exploring and Using media & materials
- Being imaginative
- Creativity
- Early years pedagogy
- Play
- Early years classroom organisation
- Early years teaching
- Early learning goals
- Early years teaching content
- Transition
- School readiness
- Disadvantaged / disadvantage / FSM

2.5 Inclusion and Exclusion Criteria

The following four inclusion criteria were used:
- Year: 2009-2019
- Geographic location and language: UK, International, In English
- Source: Published and peer reviewed
- Type of design: Secondary research review design

All evidence was assessed using the four indicators of quality (see below) and four inclusion criteria, as detailed above. Any sources not meeting at least six of the eight criteria were excluded from analysis.

2.6 Quality Criteria and Assessment Process

Quality of both quantitative and qualitative evidence was assessed using four key dimensions developed by CREC for RAE reviews (Pascal, Bertram and Peckham, 2018). Each dimension could get a score of 1 if it was deemed as being met sufficiently (see detail on each of criteria). A maximum score was 8 across both the quality and inclusion criteria.

- *Relevance of the study to the research questions:* Does it have relevance to the research questions? Is the topic of the research relevant, timely, significant and interesting?
- *Conceptual/theoretical framing:* Does the study use sufficient, appropriate, and complex conceptual and theoretical constructs?
- *Methodological rigour, transparency and ethics:* Does the study use methods and procedures that fit its stated goals? How much time is spent in the field? Are the study group(s) and study site(s) appropriately drawn? How transparent are the data collection and analysis processes? Is there self-reflexivity about subjective values, biases, and inclinations of the researcher(s)? Does the research consider: Procedural ethics (such as human subjects); Situational and culturally specific ethics; Relational ethics; Exiting ethics (leaving the scene and sharing the research)
- *The reliability, validity and trustworthiness of the findings:* For quantitative studies: Internal validity - The extent to which observed effects can be attributed to the independent variable; External validity - The extent to which the results can be generalized from the research sample to the population; Reliability - The extent to which the results would be consistent if the study were replicated; Objectivity - The extent to which personal biases are removed and value free information is gathered. For qualitative studies: Credibility - The extent to which the study's findings are trustworthy and believable to others; Transferability - The extent to which the findings can be transferred or applied in different settings; Dependability - The extent to which the findings are consistent in relation to the contexts in which they were generated; Confirmability - The extent to which the findings are based on the study's participants and settings instead of researchers' biases.

2.7 Ethical Protocols

All necessary legal, ethical and practical aspects of the project, particularly in relation to research access, data protection and ethical scrutiny have been considered.

Part Two: Evidence Review

3. Review Findings

In this section a short discussion of terminology will be offered, and then the evidence will be organised and presented in relation to each of the 6 review sub-questions.

3.1 Question Terminology

To clarify the focus in each of the review questions and sub-questions a definition of terms is provided below.

Areas of Learning: The Revised EYFS (DfE, 2012) specifies seven areas of learning. These are divided into Prime and Specific Areas but it acknowledged that they all relate to one another. Prime areas include: Personal, Social and Emotional Development (PSED), Communication and Language (CLD) and Physical Development (PD). Specific areas include Literacy (LD), Mathematics (MD), Understanding the World (UoW) and Expressive Arts and Design (EAD). The current strands for each area of learning are detailed in the table below:

Area of Learning	Strands
Personal, Social and Emotional Development	Self-confidence and self-awareness Managing feelings and behaviour Making relationships
Communication and Language	Listening and attention Understanding Speaking
Physical Development	Moving and handling Health and self-care
Literacy	Reading Writing
Mathematics	Numbers Shape, space and measures
Understanding the World	People and communities The world Technology
Expressive Arts and Design	Exploring and using media and materials Being imaginative

Each area of learning has an associated Educational Programme which practitioners are expected to follow. The Tickell Review (2011) also strengthened the importance of how children learn and identified three characteristics of effective teaching and learning (CoETL): playing and exploring, active learning and creating and thinking critically.

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Outcomes: Learning outcomes are statements that describe what the government has identified as what the learner will know and be able to do by the end of the EYFS. It sets out significant learning that Reception children should have achieved, and can demonstrate by the end of the EYFS. This might be a skill, some knowledge or an attitude. Within the EYFS these outcomes are referred to as the Early Learning Goals (ELGs).

Teaching Content: The term teaching content knowledge refers to the knowledge and information that teachers draw upon to teach and that children are expected to learn in a given area of learning, such as Mathematics, Communication and Language, and Literacy. Content knowledge includes facts, concepts, theories, and principles that are taught and learned in the EYFS areas of learning.

Teaching: The definition of teaching by Ofsted (2015) suggests that Foundation Stage practice should not imply a 'top down' or 'formal' way of working but includes the many different ways in which adults help young children learn, such as adult-child interactions during 'child-initiated play', responding to children's interests and careful planning of the 'enabling environment'.

Pedagogic Approach: Pedagogy refers to educative interactions between teachers, children, parents. It also includes how teaching and learning are shaped by the learning environment and the learning tasks offered within this. This broad term includes how teachers, parents and children relate together as well as the teaching approaches implemented. It also has reference to the wider community and family context in which the child and the adults in their world are operating.

3.2 What areas/aspects of learning are particularly important for children to develop in the EYFS, and specifically at different stages/ages from birth to five years?

It is helpful to initially consider this question holistically, viewing all seven areas of learning identified in the EYFS in the wider context of recent evidence about early learning, as this evidence indicates that no one area of learning, and its associated skills, develops in isolation from another. The BERA Review of evidence (Payler et al, 2017) indicates that from birth, children demonstrate a capacity for multi-modal learning. This is also reflected within The 100 Review evidence (Pascal, Bertram et al, 2017) which indicates that children's early development should be viewed holistically within a process of multi-sensory, active learning, rather than attempting to represent progression within any linear model or within one area of learning. We should also note that learning in all domains is not just a cognitive process but is also a socio-cultural process which is influenced by, and embedded in, the wider culture of the society(ies) in which the learning occurs.

The inter-relationship of the EYFS seven areas of learning is also evident in the wider evidence on early learning contained in recent evidence reviews. For example, key underpinning learning skills highlighted in The 100 Review (Pascal, Bertram et al, 2017), the bedrock of which are to be found in executive functioning, have been recognised as instrumental within sustained, long-term attainment in Mathematics and Literacy. The impact of self-regulation (as expressed in such skills and attitudes as motivation and perseverance, attention and problem solving, inhibition and self-regulation, cognitive flexibility, and working memory

abilities), has a strong effect on childhood self-perception, self-awareness, self-efficacy and self-esteem. These qualities are suggested by the wider evidence to provide an indication of competence in many domains of adult life, such as mental health, life satisfaction and wellbeing as well as academic success (Pascal, Bertram et al. (2017).

Given this caution in interpretation, research has indicated that there are some areas of learning and development that are particularly vital to focus on in the foundation years of life (Pascal and Bertram 2008; Tickell Review, 2011; EEF, 2018). These are currently reflected in the designated Prime Areas of Learning in the EYFS Framework and include Personal, Social and Emotional Development; Communication and Language; and Physical Development. The Tickell Report (2011, p 92) provides a clear rationale for this emphasis.

> *Rearticulating the areas of learning and development to highlight the centrality of personal, social and emotional development, communication and language and physical development is supported by a review of recent research (Angelou et al 2009), and is intended to better describe the nature of children's fundamental development in interconnected domains. Essentially, children are primed to encounter their environment through relating to and communicating with others, and engaging physically in their experiences. It is widely agreed by researchers and practitioners that personal, social, and emotional development, physical development, and communication and language are closely linked to one another and are central to all other areas of learning and development. These three interdependent areas represent the earliest stages of development, which begin before birth and continue to occur within the early years when the developing brain has a maximum predisposition for learning. …Therefore these prime areas have been selected to reflect the beginnings of child development since they are critical for influencing later success in life (and learning) and largely transcend cultural differences, emerging as an outcome of early experience.*

The Tickell Report sets out three key differences between the prime and the specific areas of learning. Firstly, **Prime** areas are time-sensitive and if not securely in place by the age of 5, they will be more difficult to acquire and their absence may hold the child back in other areas of learning. Secondly, they are characterised by their universality and occur in all socio-cultural contexts. Thirdly, they are not dependent on the specific areas of learning, although the specific areas of learning provide the context for their development. **Specific** areas of learning reflect cultural knowledge and accumulated understanding and it is possible to acquire these bodies of knowledge at various stages through life. They reflect skills and knowledge which are specific to priorities within socio-cultural contexts and they are dependent on learning in the prime areas – the specific learning cannot easily take place without the prime.

Given this rationale, in this review we have focused on recent research which might affirm or question this focus on the identified Prime areas of learning in the EYFS and also the place of the Characteristics of Effective Teaching and Learning within the EYFS. We shall begin with a review of the research on learning which is often termed self-regulation, and includes executive functioning, reflecting aspects of learning which are currently spread between the

Characteristics of Effective Teaching and Learning (CoETL) and Personal, Social and Emotional Development (PSED). We shall then take each of the current Prime and Specific areas of learning in turn to explore their significance for learning in the Foundation years.

Characteristics of Effective Teaching and Learning (CoETL)
It is widely acknowledged and evidenced (Heckman, 2011; Heckman et al 2012, Bryce, 2015) that early education programmes which seek to reduce social inequality, close the attainment gap and enhance future educational and employment prospects for less advantaged children must include an emphasis on 'life skills' or dispositional capacities such as self-regulation, which includes conscientiousness, perseverance, motivation, sociability, attention, self-regulation and anger management, self-esteem and the ability to defer gratification. This evidence is further supported in recent evidence reviews, including the BERA Review and the 100 Review (Payler et al, 2017; Pascal, Bertram et al., 2017), which highlight the importance of wider attributes in educational attainment for all areas of learning. The reviews also point out that the critical period for the formation of these dispositional capacities is in the Foundation years, birth to five (Pascal et al, 2018, p.48; Pascal, Bertram et al 2017, pp.22-23).Given this evidence, these life time capacities or dispositions are increasingly considered to be as important as, or even more important than, cognitive skills in explaining academic and employment outcomes (Heckman, 2011). Indeed, there is now growing attention from policymakers on how these dispositions or capacities can be developed in children and young people.

In educational contexts it is important to distinguish between executive functioning (EF) and the broader concept of self-regulation, as EF appears to be necessary but not sufficient in the enhancement of long-term outcomes. Jacob and Parkinson (2015) in a systematic review of the evidence on executive functioning and academic achievement, found that EF is associated with achievement, but that enhancing children's EF does not lead to an increase in achievement. Elements of self-regulation (eg: awareness of and reflection on current knowledge states) appear to be additionally required to achieve higher levels of performance. For example, Ornstein et al (2010) demonstrated that children in Grade 1 maths classes, who were taught to monitor their own memory and to develop and use appropriate memory strategies, showed enhanced performance on memory tests at the end of Grade 1 and were still outperforming their peers in Grade 4 tests 3 years later. Meta-analyses of a wide range of educational interventions designed to enhance academic achievement (Higgins et al, 2016) and social-emotional learning (Durlak et al, 2011) have consistently shown that enhancing children's self-regulation is one of the top two or three most effective interventions.

The research also indicates that the Foundation years (birth to five or six years) are a time when children's knowledge base and their capacities for metacognition and self-regulation (becoming aware of and in control of their own cognitions, emotions and behaviour) develop significantly (Robson, 2010; Rosanbalm, 2017). 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. 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. Skills involved

with self-regulation - such as executive functioning and attention control - are also necessary to build healthy and positive relationships with other people.

Whilst acknowledging the distributed nature of neural development, Harvard's Centre on the Developing Child has generated several evidence-based papers that call attention to the development of executive function skills, which emphasise the importance of self-regulation, working memory, behavioural inhibition and mental flexibility – some attributes of which are recognisable within UK early years frameworks such as the EYFS Characteristics of Effective Teaching and Learning. Executive function and self-regulatory skills are important integrated mental processes that enable us to plan, focus attention, remember instructions, and juggle multiple tasks successfully (Robson, 2010; CDC, 2011; Payler et al, 2017, p.72;).

Research from neuroscience (Diamond, 2010; 2013) affirms this approach to the early years curriculum and has identified a range of 'executive functions' which are needed for a child to make progress. Three of these core functions appear to be particularly associated with long term attainment and are vital for children to develop if the gap in achievement is to be narrowed:
1. Cognitive Flexibility i.e. switching perspectives;
2. Inhibitory Control: ability to stay focused despite distraction, have selective focused attention, stay on task;
3. Working Memory: holding information in mind and mentally working with it, making sense of what unfolds over time, relating events, ideas, learning from before to now, reasoning, cause and effect, remembering multiple instructions in sequence and following step by step in correct order.

The evidence indicates that these aspects of development are more important than entry level reading, or maths (Blair and Razza, 2007; Blair and Diamond 2008). Therefore to support a child to be 'school ready' and able to operate as an effective learner, the early years curriculum needs to focus on developing a learning environment in which the wider range of skills and capacities that underpin the currently defined areas of learning are supported and encouraged, and, importantly, give the child a sense of their own capacity to be a successful learner. This evidence supports a greater emphasis on the Characteristics of Effective Teaching and Learning within the EYFS framework which advocates the role of the child as initiator and agent of their own learning (Playing and Exploring) and motivation (Active Learning). This approach is supported by Moffit *et al* (2010 p.2).

Personal, Social and Emotional Development
Given the broad spectrum of PSED, articles pertinent to this theme were amongst the most prolific and well-researched. Some aspects also overlap with areas of learning discussed under Characteristics of Effective Teaching and Learning. Research on the development of social and emotional competence incorporates how young children develop emotional self-regulation and its contribution to pro-social behaviours, including the development of social cognition and theory of mind. Previous research on children's social competence has tended to focus on facial expressions of emotions rather than understanding the process of non-linguistic vocal emotions. Chronaki et al (2015) found that the development of vocal emotions takes longer to develop and suggest this has implications for helping young children to understand vocal emotions. Arnold (2009a; 2009b) argues that practitioners should be aware

of the links between cognitive behaviour and emotions, showing that children's repeated actions, or schemas, can be signposts to their current emotional needs and a 'window' into their emotional lives and issues (Payler et al, 2017, p.63).

A sense of self is established through socially mediated interactions with others (adults, siblings, peers) and with their culture. The importance of the social world and adults' roles has been reiterated by the discovery of 'mirror neurons' (DCSF, 2009). These specialised neural cells appear to facilitate the capacity of infants to recognise similarity between their own actions and the actions of others. Goswami (2015) also refers to the potential significance of the mirror neuron system for understanding children's capacity for imitation, language and socio-moral cognition. Although the significance of warm, positive relationships is well-established, 'contingent' responses, with the adult responding appropriately to the child's initiation, have also been identified as important (DCSF, 2009), and resonate with the well-established work on attunement within attachment relationships. Goswami (2015) also emphasises the importance of social relationships and cultural contexts in establishing the capacity of the child to become an effective learner (Payler et al, 2017, pp.62-63).

In 2015, Goodman et al. (2015) conducted a review for the DfE of the evidence on associations between social and emotional skills in childhood and adult outcomes. This review focused largely on older children, but does point to the extensive literature on the predictive importance of skills pertaining to self-control and self-regulation (such as conscientiousness and good conduct) in childhood for many domains of adult life, including mental health, life satisfaction and wellbeing, income and labour market outcomes, measures of physical health, obesity, smoking, crime and mortality. The review also revealed a significant body of work demonstrating the importance of some types of self-perception and self-awareness. Beliefs that one's own actions can make a difference – captured by concepts such as locus of control, self-efficacy – were shown to be important for a number of adult outcomes, including mental distress, self-rated health, obesity, income and unemployment. The review also showed that self-esteem in childhood is important for mental health and physical health in adult life, indicating the need for this aspect of learning to be a priority in the Foundation years. The evidence clearly indicates that personal, social and emotional development underpins all areas of learning and creates an effective learner for life confirming that this area is the building block for life-long learning and needs to be centrally placed in the EYFS.

Communication and Language Development
A comprehensive review of communication, language and literacy development undertaken by Dockrell et al 2010) for the DfE emphasises how responsive early interactions lay the foundations for later literacy (cited in Payler et al, 2017, p.64). This evidence was also acknowledged in the 2018 review of evidence by the Education Endowment Foundation (EEF, 2018). Alsford et al's (2017) study assessed children's language in seven Reception classes in a London (UK) borough and then followed the progress of children with English as their first language (E1L) and with English as an additional language (EAL) during their first 2 years at school. This study supports this link, finding that delayed language prior to starting school is seen to persist and affect ongoing attainment (Pascal et al, 2018, p.24). Alsford et al's (2017) work and Whiteside et al's (2016) study of 782 EAL and 6,485 monolingual Reception aged children, where teachers provided ratings of English language proficiency and social,

emotional, and behavioural functioning, strongly suggests that where English is an additional language or disadvantages are experienced at home, as recognised within children with EAL or in receipt of pupil premium, a clear focus on oral language development for children who are socially deprived or with EAL may be necessary through Reception and into Year one (Pascal et al, 2018, p.25) indicating the importance of establishing language proficiency in the Foundation years.

Soto-Calvo et al's (2015) longitudinal study suggests that oral language proficiency is also linked to the development of certain components of mathematical ability, such as counting and calculation. Their work echoes the relationships noted by Austin et al. (2013) between phonological awareness and certain components of mathematical performance. This study of 37 three to four-year-olds examined the relationship between phonological awareness (PA) skills using the Peabody picture vocabulary test, a test of early mathematics ability (TEMA-3) and phonological awareness literacy screening. These studies indicate that developments in one area of learning effects change in the other and highlights the inter-connectedness of learning in the early years (Pascal et al, 2018, p.25).

The wider reviews of evidence, such as The 100 Review (Pascal, Bertram et al., 2017), support the case that children need to acquire the basic phonology, syntax, and vocabulary as a fundamental basis in the process of becoming literate. Taken together with the studies presented earlier, the evidence indicates that communication and language development is a key area of learning from birth and there is a case for a strong focus on this area of learning throughout the Foundation years and even beyond (Pascal et al, 2018, p.26; Educational Endowment Foundation, 2018).

Physical Development

A Public Health Report by Brooks (2014) sets out research evidence which focuses on children in the school system, including four to five-year-olds, and brings together a raft of evidence which shows that education and health are closely linked and that physical development is associated with educational attainment. The report suggests that promoting the health and wellbeing of children has the potential to improve both their educational outcomes and their health and wellbeing outcomes. Key points from the evidence indicate that:

- *Children with better health and wellbeing are likely to achieve better academically;*
- *Effective social and emotional competencies are associated with greater health and wellbeing, and better achievement;*
- *A positive association exists between academic attainment and physical activity levels of children (Brooks, 2014, p4).*

Other research from several sources indicates a neurodevelopmental basis for a range of difficulties linked to physical development, which may include learning difficulties. This research shows that the persistence of primary reflexes has implications for later skills, such as coordination and balance and possibly cognitive learning. The work of Goddard Blythe (2005, cited in Payler 2017) focuses on children aged between seven and nine years but it is of relevance and supports the case for early interventions which develop and improve balance and coordination, particularly when such neurological dysfunction may be contributing to underachievement. Brown's (2010) intervention study appears to support this research. Her

study on 4 and 5 year old children reveals that the practice of particular movements can improve their fine motor skills by inhibiting persistent primary reflexes, which may have implications for academic learning. McPhillips et al. (2000, cited in Payler, 2017) echoed the claims being made in relation to educational progress. Their work has noted that children who experience difficulties with reading also have difficulties with balance and motor control (Payler et al, 2017, p,69). Chambers and Sugden's (2016) observations of incompetence in motor skills affecting academic work and activities of daily living being effectively mediated through graded intervention programmes also supports the value of ensuring support for fine and gross motor skills as key factors in early learning (Pascal et al, 2018, p.50). The evidence indicates that physical development is not only vital to a child's developing cognitive abilities, but it underpins a child's general wellbeing which is vital for healthy development from birth.

Literacy
Competence and confidence in literacy is a key element in securing children's long term attainment and successful participation in cultural and social life. It is well recognised that literacy is a social and cultural practice that is shaped in, and by, space and time (Gutierrez, Bein, Selland and Pierce, 2011). It is also evident that the experience of digital and non-digital literacies across home and school play an increasing influence on the importance and shape of these skills (Davidson, 2009; Stephen and Plowman, 2013). It has been shown that the way literacy learning is offered to children as part of a wider array of socio-cultural experiences which are attuned to the young child's interests and abilities will determine its impact for longer term outcomes (Lancaster, 2014: Rowe, 2008).As stated earlier, the wider reviews of evidence, such as The 100 Review (Pascal, Bertram et al., 2017), and the DfE Review (Pascal et al, 2017) support the case that children need to acquire basic phonology, syntax, and vocabulary as a fundamental basis in the process of becoming literate. Promoting higher order literacy skills before the child has secure development in oral language will lead to problems for these children (Dockrell et al 2010; Payler et al, 2017; Pascal, Bertram et al, 2017; Pascal et al, 2018). The evidence indicates that literacy learning should be a key element in the EYFS from birth, but that it is fundamentally linked to language development and relies on the secure development of language skills and understanding.

Mathematics
Research studies agree that pre-school mathematics and especially number sense predicts later achievement in school and enhances life options:

> *Children's understanding of number during preschool is consistently associated with their mathematical achievement in primary and secondary school. Mathematical achievement in turn is consistently found to be the strongest predictor of children's overall school achievement and their success in entering the workforce (EIF, 2018).*

Research reviews emphasise that not only do children who start school behind stay behind, but the gap widens for those from disadvantaged families. The EIF (2018:10) conclude: *The ages of three to five are therefore considered an ideal time to rectify income-related learning gaps in children's understanding of numbers.* Of particular predictive importance are understanding the value of numbers to 10, comprehending number symbols and understanding the relative values of numbers (Lyons, 2014). Subitising (recognizing small numbers of things without counting) and counting out the number from a group (which shows understanding of the cardinal counting principle) have also been identified as key aspects

(DEANS, 2019). In contrast, the current Early Learning Goals include expectations about numbers to 20, adding and subtracting by counting on and back, and solving doubling and halving problems, none of which are supported by research (Gifford, 2014). Recently, pattern awareness has been found to significantly predict later achievement, for instance by identifying the unit of repeat in a repeating pattern with objects (Rittle-Johnson et al, 2016). Therefore the evidence suggests that practical pattern making should be included in early mathematical education, but not abstract number patterns, as may be suggested by the proposed *Numerical Patterns* Goal. The relationship between spatial and mathematical thinking has also been shown to be significant and that spatial ability contributes to later performance in science, technology, engineering, and mathematics (STEM) (Young et al, 2018).

However, the evidence from Soto-Calvo et al's (2015) longitudinal study demonstrates how the development of counting and calculation are supported by different cognitive abilities which do not develop fully until around the age of six (Pascal et al, 2018, p.24). Gifford (2014) also cites research which suggests that children's understanding of each number being 'one more than the one before and one less than the one after' does not develop until around the age of six, indicating that engagement with formal mathematics may best be delayed with children who are not secure in this ability (Payler et al, 2017, p.67). Like literacy, the evidence indicates that informal mathematical learning should be a key element throughout the EYFS, but that some basic mathematical operations rely on the development of cognitive abilities which may not be in place until the end of the Foundation years.

Expressive Arts and Design
A study on the impact of a performing arts programme on children under 4 years endorses Csikszentmihalyi's (1996) claim that creativity happens in the interaction between individual thought and sociocultural context (Martlew and Grogan, 2013). Martlew and Grogan (2013) argue that creativity is a key factor enabling children to make sense of their experiences, through shared experiences and purposes with other minds. Zachariou and Whitebread's (2015) study investigated possible correlations between musical play and self-regulation. Although the study focused on six-year-olds, the findings suggest that engaging in musical play in the Foundation years facilitates self-regulatory behaviours (Payler et al, 2017, p.69).

Musicality and music are considered to be important for interaction and communication, and can be particularly important in very young children's development (Zachariou and Whitebread, 2015; Niland, 2015). Babies appear to be predisposed to respond to music, and musicality is cross-culturally and intuitively supported by caregivers (Payler et al, 2017, p.68). Misgivings are expressed in several studies about a tightly-framed musical curriculum, such as an exclusive focus on group music-making and performance, and the need to view music as a creative, open-ended process, rather than a re-creative practice. (Payler et al, 2017, pp.68-69). Niland's (2015) ethnographic study reinforces the argument that singing in the early years contributes to children developing a sense of belonging and identity (Payler et al, 2017).

Nutbrown (2013) calls for a clearer conceptualization of arts-based learning in the early years curriculum, stating that young children's engagement with the world is primarily sensory and

aesthetic. This statement is based on an arts-based learning project with pre-school children which concludes that arts based activity enables children to learn in ways that are naturally suited to their stage of development and enables them to take part in cultural and artistic elements of life which can sustain them in the long term (Payler et al, 2017, pp.67-68). The evidence indicates that expressive arts and design play an important role in supporting children's learning across a range of areas, and particularly PSED.

Understanding the World

There was very limited recent research which focused on the development of children's knowledge of people and communities, with the vast amount of recent material focusing on technology and digital literacy. Digital literacy has been identified as an important competence for Foundation aged children due to the growing significance of digital technology in the 21st century and its implications for early learning and development. This is a growth area for research, particularly given that all babies now being born will be digital natives rather than digital immigrants. Palaiologou's (2014) study into young children's use of digital technology at home revealed that use of the technology is widespread, and noted other research which showed that most three and four-year-old children were able to demonstrate 'digital literacy'. Palaiologou argues there is a need for the early years practitioners to use digital technology to encourage the sharing of ideas, and create learning environments that genuinely reflect children's home experiences. Plowman's et al. (2012) study also shows that children encounter a wide range of digital devices from an early age in the home and that their use was culturally situated, with parental attitudes a key factor in terms of children's access and autonomy of use. The study argues that the use of technology can promote learning in four areas: operational skills, extending knowledge and understanding of the world, developing learning dispositions by building self-esteem and an understanding of the role of technology in everyday life.

Price et al. (2015) compared the mark-making of 2-3-year-olds using traditional paint and paper and iPad touch-screen technology. This study made links to previous work on the role of mark-making in developing fine motor skills and early literacy development through the use of symbolic representation. The evidence suggests that the use of iPads led to increased amounts of mark-making and an extension of the range of mark-making touch types employed. However, the use of paint and paper provided children with opportunities for greater sensory engagement with the materials, experiencing the properties of materials and colour and enabling a wider use of different parts of the hand. Price et al. suggest that touch screen technologies should be used to complement other activities without reducing the importance of 3D sensory experiences. The evidence indicates that UoW contributes an important underpinning to children's learning in all other areas, helping to situate the child both in the wider world and home. It also provides vital skills for the child growing up in a digital age.

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Key Points

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1. **The wider evidence on early learning indicates that any consideration of one aspect of learning has to be set in the context of the progressive development of skills and understanding in all other areas of learning.**

2. **Recent research supports the continuation of a distinction between Prime and Specific Areas of Learning, supporting the rationale that PSED, CLD and PD should receive particular attention throughout the Foundation years and into Year 1.**

3. **Although it is evident that the teaching and learning of both early Literacy and Mathematics are important in the foundation years, there is little evidence to support a shift in emphasis towards Literacy and Mathematics as key priority areas of learning in the EYFS.**

4. **There is clear evidence that the Characteristics of Effective Teaching and Learning should be given more prominence as a key focus in the EYFS framework and statutory guidance.**

3.3 What outcomes should a child be achieving by the end of the EYFS that will provide a basis for lifelong learning and long term wellbeing?

It is clear from the evidence that breaking cycles of disadvantage and giving all children a basis for lifelong learning and long term wellbeing requires systemic action which brings together health, education, economic and social strategies to create an early intervention approach at every stage in the life cycle. This suggests that early education should sit within a wider programme of early intervention from birth to adulthood, with a focus on children, parents and the wider family and community if strong learning outcomes for all children, including those from less advantaged homes and who have SEN/D is to be secured. The most effective early intervention schemes often improve more than one set of factors, with some of the most effective early education programmes working in conjunction with parenting programmes, child health and maternal health programmes (Ofsted, 2012, p.28).

Further support for early intervention, well documented in the Field and Allen Reviews (2010, 2011), is the growing evidence that child development can be enhanced by high quality interventions in the foundation years. Random assignment studies of programmes (Perry Preschool, Abecedarian, Infant Health and Development and Nurse-Family Partnerships, and the EPPE research in the UK) have found that high quality early years programmes can improve child health and educational outcomes for disadvantaged children (Karoly, Kilburn and Cannon, 2005; Sylva et al, 2004, 2008). These results suggest that early childhood policies can and should play a key role in narrowing the gaps in school readiness, and in the longer term, countering the effects of socio-economic disadvantage (Ofsted, 2012, p.15).

A programme for the expansion of high quality, part time, early education to disadvantaged 2-year-olds is currently being implemented in the UK, to allow access for 40% of the most disadvantaged children. The EPPE research showed clearly high quality early education for toddlers is particularly effective for raising cognitive achievement for disadvantaged children (Taggert et al, 2015). This programme builds on the evidence base we have and its impact on securing enhanced child outcomes and countering socio-economic disadvantage is currently being evaluated as part of the longitudinal DfE funded Study of Early Education and Development (SEED) (Melhuish and Gardiner, 2018) and a study by the Early Intervention Foundation (Teager and McBride, 2018). The Early Intervention Foundation study has

detected a small positive relationship between increases in take-up over the first two years of the entitlement and increases in attainment of FSM (free school meals) children (Teager and McBride, 2018). The SEED study has also identified that cognitive and socio-emotional developmental benefits are associated with use of ECEC between ages two and age four (Melhuish and Gardiner, 2018).

As stated in the previous section Goodman et al's review (Goodman et al, 2015) of the evidence on the long term associations between social and emotional skills in childhood and adult outcomes pointed to the predictive importance of *self-control* and *self-regulation* in childhood for many domains of adult life, including mental health, life satisfaction and wellbeing, income and labour market outcomes, physical health, obesity, smoking, crime and mortality. The review also revealed evidence demonstrating the importance of *self-perception* and *self-awareness*, *locus of control*, *self-efficacy*, *social skills* and *emotional wellbeing* as powerful predictors of mental wellbeing and socioeconomic outcomes. The report by Brookes (2012) also suggests that a focus on the health and wellbeing of children has the potential to improve both their educational outcomes and their health and wellbeing outcomes.

The evidence clearly points that investment in high quality early education programmes lead to longer term positive outcomes for children. There are fewer large scale studies on which outcomes seem to be more important in securing lifelong learning and wellbeing but as set out in the previous section, there is clear evidence from robust reviews to support a particular emphasis on securing good outcomes in social and emotional development (Goodman et al. 2015) and physical development, including health and physical and mental wellbeing (Brooks, 2014), if the longer term goals of lifelong learning and wellbeing are prioritised as goals in the Foundation years.

The evidence on the association between particular outcomes in EYFS and good levels of educational attainment through primary school and beyond would seem to point to the importance of skills such as motivation, perseverance, and self-control in long term attainment. The evidence presented in the previous section points to the importance of 'life skills' such as conscientiousness, perseverance, motivation, sociability, attention, anger management, self-esteem, and the ability to defer gratification, all of which are part of children's developing self-regulation (Diamond, 2010, 2013; Blair and Razza, 2007; Blair and Diamond 2008; Heckman, 2011; Senha et al, 2016). Research from neuroscience (Diamond, 2013) also identified three core *executive functions (EF)* which appear to be vital for children to develop if the gap in achievement is to be narrowed: Cognitive Flexibility; Inhibitory Control; and Working Memory.

A Swiss study (Roebers et al, 2014) confirms the importance of these underpinning skills as an important outcome in children's longer term attainment. This study explored children's performance in fine motor skills, executive functioning and non-verbal intelligence at the age of 5-6 years to explore how far they might predict early school achievement (in terms of mathematics, reading, and spelling) at the end of participants' first grade. Fine-motor skills and executive functioning (EF) have both been found to be powerful predictors of school

readiness and of subsequent academic achievement (Blair and Diamond, 2008; Cameron et al., 2012; Grissmer et al., 2010). Taken together, this evidence indicates that the EYFS should focus on those outcomes which give the child a sense of their own capacity to be a successful learner. These outcomes are strongly evident in the EYFS under the Characteristics of Early Teaching and Learning, PSED and PD.

In 2011 Snowling et al (2011) undertook a commission from the DfE to review evidence on the link between language and communication and later attainment. This evidence shows that language skills are amongst the best predictors of educational success. Findings from a population-based longitudinal study of parents and children in the UK also indicate that language development at the age of two years predicts children's performance on entering primary school (Roulstone et al., 2011). The study also showed that children who enter school with poorly developed speech and language are at high risk of literacy difficulties and that educational underachievement is common in such children. In their 2015 paper evaluating a 'Talk Boost' intervention programme for children with delayed language from 18 primary schools (180 children from Reception, and Y1 and Y2), Lee and Pring present what they term as 'well recognised' evidence that children who experience early socio-economic disadvantage have delayed language development, and they found this persists even after the intervention programme boost (Lee and Pring, 2015). The evidence from the Snowling (2011) review reveals that the process of becoming literate begins when children are infants and that language development prior to beginning school serves as the backbone of later literacy development. It indicates that the core of language acquisition occurs between 1 to 4 years (Reception year), with children acquiring much of the necessary basic phonology, syntax, and vocabulary during this time.

Whitebread and Bingham (2014) also suggest that current developmental psychology and neuroscience indicates that the basic processes of learning and reasoning are in place from infanthood. They argue that during this period the child's knowledge base and their capacities for metacognition and self-regulation (becoming aware of and in control of their own cognitions, emotions and behaviour) develops. The development of language is central to the whole process; as a symbolic system, and through the channels of pretend play and the imagination, the very young children can think and reason about experiences and ideas in sophisticated ways. 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. 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.

The evidence on the desirability of a focus on literacy outcomes during the Foundation years in pursuit of longer term educational attainment indicates that this may be detrimental for many young children who have not yet secured their language outcomes. As stated earlier, the evidence (Dockrell et al 2010; Payler et al, 2017; Pascal, Bertram et al, 2017; Pascal et al, 2018) shows that children need a securely developed understanding of spoken language, vocabulary and listening comprehension skills, which are derived through routinely experiencing diverse

vocabularies embedded within language-rich environments of songs, nursery rhymes and stories with ample time for adult/child and peer-to-peer interactions before progressing to a focus on literacy outcomes.

The importance of physical development for educational attainment is also evidenced in the review. For example, Grissmer et al (2010) found that motor skills in early childhood were significant predictors of achievement in reading and mathematics in primary school.

In short, there is substantial evidence that indicates that if educational attainment through primary school and beyond is a key goal for the Foundation Stage, then key outcomes for the end of the Foundation years are those skills and understandings that can be identified under Characteristics of Effective Learning; Personal, Social and Emotional Development, Communication and Language Development and Physical Development ie the prime areas of learning.

Key Points

1. **When educational attainment through primary school and beyond are prioritised as goals for the Foundation years, securing good child outcomes which are identified under Characteristics of Effective Learning, Communication and Language Development, Personal, Social and Emotional Development and Physical Development should be prioritised.**

2. **Focusing too soon on Literacy and certain Mathematical outcomes during the Foundation years may be detrimental to the longer term attainment of those children who are not yet secure in oral Language outcomes, including an understanding of how language works in the wider social and cultural context.**

3.4 What are the implications of the ELGs (EYFS outcomes) for summer born children?

There have been longstanding concerns that children born towards the end of the school year (summer-born children) suffer adverse educational impacts because they start school at a younger age than their peers. Research has found significant differences in test scores between autumn-born and summer-born pupils in attainment at school and the differences are evident at the earliest ages and remain (though are smaller) at GCSE and A level, and in further and higher education (DfE, 2010; Crawford et al, 2013). The artificial advantage given to autumn-born pupils in tests of educational attainment can also have an impact on their wellbeing at school. There is little recent evidence on the implications of the current ELGs for summer-born children other than analysis of the EYFSP data which shows summer-born children consistently underperform those who are born earlier in the school year. To accommodate these concerns, a degree of flexibility is provided whereby a parent may request that a summer-born child is admitted to school outside of their normal age group.

Norbury et al's (2016) large scale population study of 7,267 children aged 4 years 9 months to 5 years 10 months in Reception classes is in line with this evidence. They found that younger children experience lower levels of language competence and academic progress in the first year of school and investigated whether these disadvantages are indicative of a

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mismatch between language competence at school entry and the academic demands of the classroom. The authors suggest that the youngest children are not yet ready to meet the academic and social demands of the classroom and that developing oral language skills and/or ensuring academic targets reflect developmental capacity could substantially reduce the numbers of children requiring specialist clinical services in later years. Given the lack of recent evidence it is interesting to note an earlier study by Bedard and Dhuey (2006) which showed that the summer-born effect is reduced or completely disappears in countries where the formal teaching of literacy and numeracy are delayed (eg Finland and Denmark).

Key Points

1. **Summer born children do less well on tests of academic attainment at all stages of education, including the EYFS.**

2. **The evidence suggests that adjusting the academic and social demands of the classroom for these children and adjusting the ELGs to reflect their younger age could address their perceived under achievement.**

3.5 What teaching content is particularly beneficial to supporting good levels of development in the prime and specific areas of learning?

Recent evidence on what teaching content is beneficial for supporting good levels of development in the prime and specific areas of learning is patchy, with good evidence for some areas of learning and much less evidence available for others. There is good evidence about beneficial teaching content for Communication and Language, Literacy and Mathematics and this is presented below. It is useful to note here that Aubrey and Ward's (2013) paper based on a large scale survey suggests that to effectively support children within diverse cultural and social norms (for example, recent immigrants) the diversity of learners must be recognised within teaching content. Derbyshire et al's, (2014) research also indicates that de-contextualized teaching content, unsympathetic of life experiences and cultural values, can be inaccessible to many children and can undermine the unique abilities of children, causing stress and failing children from less advantaged backgrounds. In such curricular models, Hughes et al. (2015) suggest that teaching content needs to equally recognise life experiences and broader social and behavioural competencies.

Communication and Language Development
Silke Fricke et al's (2012) RCT study of 180 children from 15 UK nursery schools randomly allocated to receive a 30-week oral language intervention (or control group) continuing with daily sessions on transition to Reception class (pre-Year 1), suggests that appropriate early intervention for EAL children and those with oral language difficulties can effectively support the skills of oral language and spoken narrative skills immediately and after 6 months (Silke Fricke et al. 2012). With the complexities intrinsic within the process of learning English as an additional language (EAL) in the early years, Drury (2013), in her case study of a young bilingual child, highlights the need for a socio-cultural perspective on young children's learning during this time.

Guilfoyle and Mistry's (2013) small scale case study highlights the importance of role play for improving the vocabulary of EAL learners. Whilst the use of manual gestures alongside spoken words, such as in Sign-Supported English, has been seen to have no effect on EAL children's learning of English vocabulary (Marshall and Hobsbaum, 2015), the use of role play has been seen to support the development of both speaking and listening skills with an improved use of English and a wider range of language learning strategies (Guilfoyle and Mistry, 2013). Studies reported by Romeo et al, (2018) also indicate that turn-taking in conversation is an effective way to build vocabulary.

Small group times, when offered as a forum for sustained conversation and language development, have been seen to facilitate opportunities for children that match their language needs, supporting the transition from informal early years environments where communication supporting environments offer opportunities to hear and practise language, to the more formal talk requirements of educational settings, as revealed in King and Dockrell's, (2016) small scale case study in one nursery setting. Theoretically motivated interactions, utilising evidence-based oral language programmes such as Talking Time and I Can's Early Talk, are found by evaluative studies to offer a balance of support and challenge, consolidating and extending good practice (Jopling et al., 2013), leading to significant effects on children's oral language, vocabulary, oral comprehension, and sentence repetition and Dockrell, et al. (2010) suggest the need for more intensive interventions to raise language skills, including listening and attention, allowing learners to better access the curriculum. However, Haley et al., (2017), in their report of a randomized control trial of a 15 week oral language programme for children 3-4 years, add a note of caution, suggesting that whilst such interventions successfully build vocabulary knowledge in small groups of preschool children, it does not appear to generalise to non-taught areas of language.

When valued and supported, multi-layered approaches involving children, staff and parents can be effectively used to promote communication development in early years classrooms (Bain et al., 2015), early intervention offers clear improvements in phonological awareness and oral language skills (Silke Fricke et al. 2012) which underpin reading comprehension. Blackburn and Aubrey (2016) offer evidence from their qualitative survey to be considered within the policy-to-practice context of delays and difficulties in the acquisition of speech, language and communication. Their work suggests that language is dynamic and complex, involving multiple dimensions such as expressive and receptive skills and phonological short-term memory which oral language programmes should support. The BERA Review (Payler et al. 2017) reports that children with well-developed expressive and oral vocabularies are unlikely to experience difficulty in learning to read. Whilst children's phonological skills are important in learning to read, the evidence indicates that supporting the development of vocabulary through encouraging dialogue and turn taking in conversations should receive the same attention in teaching content. The Education Endowment Foundation (2018) review also emphasised these approaches to teaching communication, language and literacy.

<div align="center"><strong style="color:red">Key Points</div>

1. The core of language acquisition occurs between 1 to 4 years, with children acquiring much of the necessary basic phonology, syntax, and vocabulary during this time.

2. Language development prior to beginning school serves as the backbone of later literacy development.

3. Teaching content should include extensive support for vocabulary development, especially for less advantaged children and children with EAL. This content should include theoretically motivated interactions, expressive and receptive skills, and clear support for extending children's oral language, vocabulary, oral comprehension, and sentence repetition.

4. Role play and small group times offer an effective means for delivering sustained conversation and language development, offering opportunities to hear and practise language.

Literacy Development

It should be noted that the evidence suggests that literacy skills development is not possible without a securely developed understanding of spoken language, vocabulary and listening comprehension skills, which are derived through routinely experiencing diverse vocabularies embedded within language rich environments of songs, nursery rhymes and stories with ample time for adult/child and peer-to-peer interactions with opportunities to listen to sounds as they begin to identify corresponding graphemes (Pascal, Bertram et al. 2017). It is also important to recognise that through cultural immersion in environmental, commercial and digitally-based texts, very young children are developing significant understandings about how print carries meaning and linguistic messages, and that these understandings are developing concurrently with verbal language. These early experiences with a broad range of texts are potential resources that can be capitalised on in early literacy teaching and learning. The Education Endowment Foundation review of evidence (2018) advocates a balanced approach to the teaching of early reading, using a number of different approaches rather than focusing on any single aspect of early reading.

Reading: Hulme and Snowling's (2011) review of the literature indicates that reading is more than word recognition, involving the extraction of meaning from text, decoding and comprehending the language used. This is reflected in their growing concern for children who can read accurately but have poor comprehension. This is reiterated in a longitudinal case study by Carroll et al. (2016) which followed 267 children from school entry for 2, 3 and 4 years, identifying and tracking 42 poor readers, and showed that there are multiple interacting causes of poor reading outcome, with difficulties in verbal short-term memory, phonological awareness, print knowledge and rapid naming, all predicting later reading difficulties, with deficits in visual search and in auditory processing present in many poor readers. Hulme and Snowling (2011) present evidence to show reading comprehension impairment, with its potential range of oral-language weaknesses, remains relatively common, impeding comprehension of both written and spoken language. They argue that this still goes largely unrecognised in the classroom, despite the potential for underlying oral language difficulties to be ameliorated by school-based interventions, improving both reading and listening comprehension skills (Hulme and Snowling, 2011). Bourke and Adams' (2012) mixed method study of 67 Reception aged children emphasises the role played by verbal re-coding skills that children develop within an established short-term memory (STM) in early progress in reading and writing, demonstrating that development of short-term retention is associated with progress in learning to read.

Treiman et al's, (2013) case study of English children (in Reception year and Year 1) and US 6-year-olds (in kindergarten) examined the approach of UK phonics programmes where letter sounds are the focus, comparing outcomes of US programmes where the letter name is the focus. Whilst UK taught programmes demonstrated an impact on patterns of performance and types of errors made, the ease of learning was not affected. A study by Shapiro et al., (2016) which compared two synthetic phonics programmes suggests that synthetic phonics, the rudiments of early reading, begins with the systematic and structured development of phonic knowledge, which is understanding which letter(s) make which sounds. This involves children applying their developing knowledge and skills to decode words, blending sounds when words are unfamiliar until this is no longer needed. With every new word this involves matching printed forms to phonological representations, individually translating each grapheme within a process of serial decoding that requires great effort. To manage this, the study shows that when beginning to read young children will draw heavily on their existing print knowledge and cognitive factors of working memory and vocabulary. Shapiro et al also suggests that synthetic phonics programmes should be simplified, teaching only the most consistent mappings plus frequent words by sight, particularly for children starting reception with poorer phonological awareness. A small scale study of the development of early literacy in Steiner- and standard-educated children by Cunningham and Carroll (2011) suggests that where high-quality synthetic phonics instruction is administered consistently, formal reading instruction to four and five-year-olds can be strengthened.

Levy (2009a) in her case studies of nursery and Reception practice, advises that staged reading systems should be used with caution and children actively encouraged to value a wide range of reading skills and texts. Kapalková et al's (2016) research into an intervention strategy for two-year-olds demonstrated the use of gesture in supporting the teaching of new words, observing that children learn vocabulary and grammatical skills significantly better than when pictures alone were used.

Further research conducted by Levy (2009b) noted that confidence gained from the early use of technology within learning diminished as 'schooled' approaches to print literacy were encountered, suggesting that ways to capitalise on multimedia should be considered in the promotion of young children's confidence and skills. With metacognitive development (Wolfe and Flewitt, 2010) and Theory of Mind (Atkinson et al., 2017) facilitating language and reading comprehension, underpinning children's abilities to act strategically, it is evident that 'collaborative multimodal dialogue' should be considered in supporting literacy development through social practices, with technologies offering new dimensions to literacy learning (Wolfe and Flewitt, 2010).

Writing: The Education Endowment Foundation review (2018) acknowledges that writing is physically and intellectually demanding and is underpinned by expressive language. A study by Bourke and Adams (2012) suggests that when children learn to write they are relying heavily on the understanding of writing conventions they have gained through reading, as well as their reading performance and visuo-spatial memory skills. Adams et al's (2013) study of 108 children aged 5-6 years, which measured various aspects of reading and writing skills, adds to this evidence by indicating that where these skills are securely developed, children present as better spellers and can produce more individual letters and words in their texts than children

who are relying on visual memory strategies. Boyle and Charles' (2010) case study of one five-year-old child suggests that becoming a writer is a complex structural and developmental process that cannot be taught within predominantly a whole-class structure with their demands for completion within fast-paced time limits. Instead, they suggest that sustained recursive opportunities should be offered to the child to engage with experiences, taking children beyond the process of simply 'mark making' to the abstractions of written composition (Boyle and Charles, 2010). Such active engagement within social and cultural worlds when combined with positive adult perceptions, Bradford and Wyse (2013) suggest in their small scale case study of writing and writers in a nursery setting allows for children's earliest discoveries about written language and clear perceptions about themselves as writers. Daniels (2014) vignette of a group of five-year-old boys engaged in literacy practices adds to this evidence, questioning any view of early writing development that views progress as a set of individual and predefined set of skills to be acquired, serving only to undervalue the experiences children bring. Instead, Daniels' work suggests that children's collaborative engagement should be sought within narrative play, space and materials as literacy practices create a range of meaningful texts and further children's cultural agency.

Key Points

1. **Literacy skills development is not possible without a securely developed understanding of spoken language, vocabulary and listening comprehension skills which develop throughout the Foundation years and beyond. Literacy learning should start with enabling robust vocabulary skills which supply the cognitive foundations of both reading accuracy and reading comprehension.**

2. **Pre-literacy development needs to include verbal short-term memory and retention, visuospatial memory skills, phonological awareness, print knowledge and rapid naming skills along with visual search and auditory processing.**

3. **Teaching content should include reading aloud words, rhymes and stories that are consistent with children's developing phonic knowledge from birth.**

4. **Initial understanding of writing conventions is gained through experiences of reading. Teaching content for writing composition should reflect that this is built through spoken language and the comprehension of stories, sequencing sentences to form short narratives and re-reading for sense. Children's engagement in writing should be sought within narrative play, space and materials as literacy practices create a range of meaningful texts.**

5. **Synthetic phonics requires well-established systematic and structured development of phonic knowledge, print knowledge and cognitive factors of working memory and vocabulary. Children need to develop methods of extracting meaning from text, decoding and comprehending the language used.**

6. **High-quality synthetic phonics instruction can strengthen reading skills but simplified phonics programmes, teaching only the most consistent mappings plus**

Mathematical Development

When considering appropriate teaching content to support mathematical development it is useful to note a paper by Vandermaas-Peeler et al. (2012) which reports on a small scale experiment looking at the role of questions in parents' teaching of numeracy. This study suggests that the teaching of numeracy in the Foundation years should be practical. They propose that when teaching content acknowledges the power of practical activity and is coupled with appropriate guidance about questioning, both basic and more complex numeracy skills are permitted to develop. Göbel et al.'s small scale case studies (2018) echo this holistic approach to teaching mathematics by highlighting the impact of teaching which appreciates the non-linear nature of children's learning. This is illustrated through the spatio-temporal representations of order, intrinsic with sharing a book, being seen to impact children's spatial representation of number as counting direction practices amend as reading direction is observed. This, they argue should cause caution against traditional approaches to numeracy instruction where this holistic nature of learning can become overlooked.

Mathematics research by Whitebread et al (2009), which involved observational analysis of 582 videotaped 'events' involving children from 3-5 years, and Soto-Calvo et al., (2015) a 14-month longitudinal study of 125 children from 3-5 years, indicate that it is children's grasp of core mathematical concepts that needs deepening during the early years. This research suggests that rather than moving children on more quickly to formal calculations and written algorithms, it is the underlying concepts of mathematical application that should be the focus. Muldoon et al's (2009) literature review also emphasises the importance of mathematical concept learning. This study explored why set-comparison is vital in early number learning and highlights that the cardinal number system serves two logically complementary functions; how many things there are and whether two sets of things are equivalent or not. Current models of practice tend to focus on the 'how many', and with more advanced computation this relies on children's understanding of each number being 'one more than the one before and one less than the one after'. Muldoon et al., (2009) suggest that whilst counting, numeral recognition and the additive composition of number act as prerequisites for more complex mathematical concepts, the understanding of these, and therefore the essential focus during the formative years of numeracy, should be in embedding ideas of equivalence, with consideration for how the link between counting and set-comparison is achieved.

Papers by Carruthers and Worthington (2011) and Worthington and van Oers (2016), reporting on small scale qualitative case studies of mathematical teaching and learning, demonstrate the

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benefits of teaching that allows children to represent their mathematical understanding in ways correct for them, permitting personal and cultural knowledge to become tools. Teaching of mathematical content should therefore, Carruthers and Worthington (2004, as echoed by Worthington and van Oers in 2016) argue, allow and actively support opportunities for children to freely explore how they represent their mathematical understanding, exploring and elaborating their mathematical knowledge by drawing extensively on their personal and cultural knowledge in pretend play. Enabling this engagement supports the development of conceptual knowledge of number and number operations, without which their engagement with formal mathematics may be delayed. Worthington and van Oers's (2016) study into the relationship between children's pretend play and the emergence of cultural mathematical understandings and communications also showed how, as with literacy development, children draw extensively on their personal cultural knowledge in pretend play, exploring and elaborating their mathematical knowledge within the context of their unstructured pretence and imagination. This research concurs with Dunphy (2006) regarding the development of young children's number sense through participation in sociocultural activity, in which play, multi-modal engagement and reciprocal relationships are embedded.

This appreciation for the tactile foundations of understanding of number is further echoed in evidence presented in the BERA-TACTYC Review (Payler et al, 2017) when discussing the social nature of mathematical understanding, rehearsing mathematical language through multi-modal forms of representation and play, as conceptual understanding is supported within problem-solving in social contexts. The review goes on to indicate that in mathematics, teaching content should provide for problem-solving within social contexts as a primary medium for mathematical learning, with mathematical language, multi-modal forms of representation, and play significant in supporting conceptual development. Without this appropriate conceptual development of number and number operations, it cautions, the engagement with formal mathematics may be delayed.

Carruthers and Worthington's (2005) analysis of children's mathematical graphics identifies five common forms of graphics - dynamic, pictographic, iconic, written and symbolic – and five dimensions - early play with objects and exploration marks, early written numerals, numerals as labels, representation of quantities and counting early operations. In another paper Carruthers and Worthington (2004) analyse how numeracy develops, particularly in relation to children's thinking, from counting, to separating sets, to exploring symbols and the representation of operations. They identify the wide variety of mathematical graphics utilised by children. Carruthers and Worthington argue that teachers must allow and actively support opportunities for children to freely explore how they represent their mathematical understanding.

Regarding shape, space and measures, there is growing research to suggest that, rather than omitting these from the Early Learning Goals, spatial reasoning in particular should be fostered. Much research shows that spatial skills predict not only general mathematics attainment (Utall et al, 2013; Cheng and Mix, 2014; Lauer and Laurenco, 2016), but innovation and creativity in STEM fields (Kell et al 2013). In particular, five year olds' spatial transformation skills (eg rotating shapes and predicting which will fit together, like a jigsaw, or combining two shapes and predicting what composite shape they will make) predict their number line visualization (Gunderson et al, 2012). More recently, Giles et al (2018:1335)

found that children's 'interceptive timing' abilities involved in ball skills predicted higher mathematics ability. It seems that the ability to visualize spatially depends on a range of experiences, involving movement in space and manipulation of objects, which enable children to interpret images and predict results of movements. In turn, visualization helps children mentally represent numerical concepts and other relationships, enabling them to solve a range of problems, according to Sinclair and Bruce (2015). They conclude the curriculum should move away from the current '*passive emphasis on vocabulary (naming and sorting shapes by properties)*' and extended to *'a more active meaning-making orientation'* including composing and decomposing, mapping and orienting and comparing and mentally manipulating two- and three-dimensional figures (2015:320). The research therefore implies a greater focus on outdoor experiences, puzzles, shape play and construction.

There is less recent research available on early measures, although experiences with length and weight, for example, have been recommended as underpinning number understanding and important ideas of comparison and equivalence. Play with adult measuring tools, including clocks and calendars, also provide motivating familiarization with numbers.

<p align="center">Key Points</p>

1. **Foundation Stage children need to first grasp basic mathematical concepts eg equivalence, as a basis for engaging with formal mathematical skills such as counting, numerical recognition and the additive composition of number. The underlying concepts of mathematical application should be the focus in early mathematical teaching.**

2. **Mathematical teaching content with young children should include the use of practical activities, offering children opportunities to manipulate resources as they aid their understanding through visual imagery and traditional games to apply their counting and early calculation skills.**

3. **Teaching content should provide for problem-solving within social contexts as a primary medium for mathematical learning, with mathematical language, multi-modal forms of representation, and play, significant in supporting conceptual development.**

4. **There is growing research to suggest that shape, space and measures should be included in the Early Learning Goals and spatial reasoning in particular should be fostered.**

5. **Teaching content should allow and actively support opportunities for children to freely explore how they represent their mathematical knowledge and understanding by drawing on their personal and cultural knowledge in pretend play.**

3.6 What pedagogic approach best supports a child to achieve a good level of development throughout the EYFS and enables them to achieve their potential?

This question sets out to identify evidence on the most effective way to teach or facilitate a Foundation stage child to achieve the optimal level(s) of development and outcomes throughout the EYFS and in all areas of learning. More specifically, it includes evidence which focuses on ways of enabling children's learning, which might include a form of instruction (teaching) or strategies used to support children to think critically and understand how the learning process works for themselves (facilitation). Firstly, the evidence on overall or generic pedagogic approaches in the Foundation years will be presented, including a discussion of evidence on transition from EYFS to Year 1 of the National Curriculum. This is followed by evidence on more specialised pedagogies for each of the prime and specific areas of learning. It should be noted that most of the recent evidence on pedagogic approaches focuses on children from 3-6 years old with published research on approaches for birth-3-year-olds much less evident.

Generic Pedagogical Approaches
The evidence identifies three generic pedagogic approaches which have been shown by research to be particularly effective in supporting young children's development and enabling the achievement of a young child's potential: Play-based; Hybrid; Relational. Each of these contrasts sharply with the dominant, more instructional pedagogy that they might encounter in primary schooling, and from which the child may have to transition on entry to Year 1.

1. **Play-based Pedagogies**
A play-based pedagogy supports young children's cognitive development by tapping into children's individual interests, drawing out their emerging capacities, and responding to their sense of inquiry and exploration of the world around them. Through their play children are using their curiosity, exploratory drive and imagination, developing social and cognitive skills, including language skills, social skills, self-help skills and fine and gross motor skills. A play-based approach involves both child-initiated and teacher-supported learning. The teacher encourages children's learning and inquiry through interactions that aim to stretch their thinking to higher levels. Play-based learning appeals to children's natural curiosity and desire to engage in experiences based on their interests, strengths and developing skills as they make sense of their world around them. The value of this pedagogic approach is well acknowledged in the EYFS framework and recent evidence continues to support its value in supporting young children's development.

As set out in the BERA-TACTYC Report (Payler et al, 2017) a recent and detailed review of the evidence on the value of play for learning (Zosh et al, 2017) reports that learning through play supports overall healthy development, acquisition of both content (e.g., mathematics) and learning-to-learn skills (e.g., planning, exploration, evaluating). Goswami and Bryant (2007) report evidence from neuroscience which has shown that learning depends on neural networking across visual, auditory and kinaesthetic brain regions indicating that opportunities for multi-sensory, active learning are key to learning. It follows that play, both free and guided, which maximises neural networking opportunities, is a central mechanism in facilitating both social and academic development in young children. A study by Stagnitti et al (2016) investigated the influence of a play-based curriculum on the development of

pretend play skills and oral language in children attending their first year of formal schooling. The results suggested that, in addition to improving play skills and narrative language ability, the play-based curriculum also had a positive influence on the acquisition of grammar.

Hedges and Cooper's (2014) paper from New Zealand, set out to identify the value of the Te Whāriki programme, and contributes to the debate about what constitutes an appropriate pedagogy for supporting outcomes in early childhood by discussing how a child-initiated, play-based approach needs to make learning more visible through clear documentation, to reassure parents and policy-makes that learning is taking place. Hedges and Cooper note that there is still widespread doubt about the value of play-based learning. '*It is vital then to find ways to make visible, and assist parents* [and policy makers] *to value the social and cognitive processes through which children learn during play*' according to Hedges and Cooper (p.396).

The paper by McGuinness *et al.* (2014) provides another perspective on play-based pedagogies. In this study, the authors compare the outcomes of a play-based, developmentally sensitive curriculum with a more traditional curriculum. McGuinness et al. present data from the evaluation of the *Enriched Curriculum* (EC), the play-based curriculum that was introduced in volunteer schools across Northern Ireland in 2000, and later became the Foundation Stage curriculum in 2007 (Walsh, 2011).The reason this research is interesting is that the study followed a large number of children into primary school and investigated the medium-term effect the play-based, developmentally more sensitive, early childhood (EC) pedagogy had on progress in reading and mathematics. The results showed that in the two to three first years of school, the EC children's reading and mathematics test scores were not negatively impacted and there was a positive influence on children's dispositions and motivations for learning.

2. Hybrid Pedagogies

A hybrid pedagogy is a combination of two or more pedagogies and this approach has been promoted recently based on research from the EPPE project (Siraj-Blatchford et al, 2012; Taggart et al, 2015) and supported by recent OfSTED reports (OfSTED, 2017). The EPPE/EPPSE project took place from 1997-2014 and was the first major European longitudinal study of a national sample of young children's development (intellectual and social/behavioural) between the ages of 3 and 14 years. It investigated the long term effects of pre-school education for 3 and 4 year-olds by collecting a wide range of information from over 3,000 children, their parents, home environments and the pre-school settings they attended. Settings (141) were drawn from a range of providers (local authority day nursery, integrated centres, playgroups, private day nurseries, maintained nursery schools, maintained nursery classes and 25 reception classes. EPPE also explored the characteristics of effective practice (and the pedagogy which underpinned them) through 14 intensive case studies of settings with positive child outcomes (including 2 Reception classes).

Evidence from this important and large scale project (Sylva et al, 2004, 2010) indicates that certain pedagogical practices appear to be more effective than others in improving attainment for less advantaged children. There has been a long debate about the extent to which preschool education should be formal or informal, often summarised by the extent to which the curriculum is 'play'-based. The EPPE study concludes that in the most effective centres 'play' environments were used to provide the basis of instructive learning. However,

they found that the most effective pedagogy combines both 'teaching' and providing freely chosen, yet potentially instructive play activities. Through analysing the progress of children during the Foundation years, researchers identified individual settings that promoted children's developmental outcomes beyond what would be expected given the child's developmental profile at age 3 and their social background. The case studies identified four areas that appeared to be particularly important when working with children aged 3-5 years: 1. The quality of interaction 2. Initiation of activities 3. Behaviour expectations and discipline 4. Diversity. The opportunity for children to self-manage, to take initiative and self-direct their learning was shown to be a key factor and the extent to which staff members extended child-initiated interactions was also important. The study found that almost half the child-initiated episodes that contained intellectual challenge included interventions from a staff member to extend the child's thinking. Freely chosen play activities often provided the best opportunities for adults to extend the child's thinking. It may be that extending the child-initiated play, coupled with the provision of teacher-initiated group work, are the most effective vehicles for learning. Children's cognitive outcomes appear to be directly related to the quantity and quality of the teacher/adult planned and initiated focused group work (Sylva *et al* 2004).

A review of the more recent evidence from this study (Siraj-Blatchford et al, 2012; Taggart et al, 2015) reinforces earlier evidence from the study that a 'balanced' or 'hybrid' teaching approach, blending adult instruction with play-based, child-led, relational approaches, and incorporating adult-scaffolded learning objectives, effectively supports mathematical, literacy and communication and language development, offering a 'blend' between direct teaching and free play in early years classes. The more recent findings show that teaching and learning was most effective in those early years settings that viewed academic and social development as equally important but maintained a strong educational focus; had a good balance of practitioner-initiated and freely chosen play activities (with around half of interactions being child-initiated in 'excellent' settings compared with about 15% in 'good' settings); had adults that extended children's learning opportunities and provided on-going formative feedback; encouraged 'sustained shared thinking' and open-ended questioning to extend children's thinking, being mindful of differentiation and children's individual needs; had behaviour policies that supported children rationalising and talking through areas of conflict; encouraged parental involvement with regular discussion with parents about their child's progress.

The study revealed that attending high quality settings with these pedagogic characteristics positively influenced pupil's views of 'enjoying school', with children showing reduced anti-social/worried behaviour when they entered school and better attainment in reading and maths at age 6. In particular, the study assessed 4 cognitive outcomes, including Language skills; Pre-reading skills; Early number concepts; and Non-verbal skills. It also assessed 4 social and behavioural outcomes including, Independence/Concentration; Co-operation/Conformity; Anti-social/Worried/Upset; and Peer Sociability. Taggart et al (2015) conclude, when looking at the whole range of provision, that in the most effective centres play environments were used to provide the basis of instructive learning. However, they found that the most effective pedagogy combines both *adult-framed activities* and providing freely chosen, yet potentially instructive play activities. They point out that effective pedagogy for Foundation Stage children should be less formal than for primary school but its curricular aims can be academic as well as social and emotional. It should also be noted that

effective pedagogic practice was more often found in maintained school provision, including nursery schools and classes and Reception classes. The current SEED study (Melhuish and Gardiner, 2018) also indicates that attendance at higher quality settings with higher staff qualifications and training (which generally characterises nursery schools, classes and reception classes) has a positive impact on children's cognitive and socio-emotional outcomes measured at age four.

Further evidence to support the case for a balanced or hybrid teaching approach in the Foundation years that is based on high quality adult-child interactions and an acknowledgement of the key role of play in supporting child outcomes comes from a range of small scale qualitative studies. For example, McInnes et al (2013) explore the vital role of the adult in children's play for eight children across two reception classrooms and suggest that adult-child interaction based on open questions and exchanges and on shared control maximises playfulness, choice and child interaction and based on wider research inferred that this may be associated with learning. Their work suggests that play that is rich in adult–child interactions within a co-constructed play-based environment is a productive context for enabling learning. Nutbrown and Clough's earlier work (2009) reporting on 16 school-based practitioner-led projects (3-6 year olds) and Hood's (2013) case study of developing a new pedagogy across a primary school, echoes the effectiveness of including young children in commenting on and improving their learning environments. These papers argue that including children in the identification and exploration of issues important to them promotes a positive sense of inclusivity and that such approaches to developing pedagogies of citizenship and belonging can promote a range of pupil outcomes.

A study by Walsh *et al.* (2010) explored what they termed an 'Enriched Curriculum' in which the overarching principle is what they call '*playful structure*'. In a playfully structured environment teachers guide children's learning experiences in a playful way. They talk about '*maintaining adequate structure to ensure that effective learning takes place*' (p.23). It gives the impression that during adult-child interactions the adult is very much in control, albeit in a playful way. Within this framework it seems adults are being given the 'permission' to teach through play.

This seems very similar to what Weisberg *et al.* (2013) call '*guided play*', which they propose as an alternative to traditional teaching in the early years (p.104). They assert that guided play, which lies somewhere between direct teaching and free play, is not only more developmentally appropriate but that the evidence that they reviewed suggest that it outperforms didactic approaches when it comes to academic and cognitive outcomes. …They define *guided play* as interactions that '*incorporate adult-scaffolded learning objectives but remains child-directed*' (p.105).

3. Relational Pedagogies
Relational pedagogy emphasises inter-human, personal encounters and relationships in the classroom where the focus is on the quality of interactions between children and their teachers, developing classroom communities that promote academic, social, and emotional growth. Papatheodorou (2010) lucidly explores the philosophical underpinnings of four different curricula and the view of the child and childhood they promote and she identifies the *Reggio Emilia* curriculum as a relational pedagogy which values children's real life

everyday experiences and where the notions of *being*, *belonging* and *becoming* are all interconnected. The *Te Whãriki* curriculum is also considered an example of a holistic and relational curriculum where the notions of *being*, *belonging* and *becoming* are all interconnected. The child is seen as '*a citizen, who is deeply connected with her/his roots and culture and has a sense of identity, belongingness and connectedness* (p.4). The *EYFS* on the other hand, Papatheodorou presents as an example of a curriculum that views the child as a future pupil and citizen, an economic investment for the adult they will *become.*

A study on the quality of early education and care programmes for under-threes by Mathers et al (2014) considers international research on the dimensions of quality in early years education and care that facilitate the learning and development of children from birth to three and provides some useful evidence to support a relational pedagogic approach. This review identified four key dimensions of good quality pedagogy for all children under three:
- Stable relationships and interactions with sensitive and responsive adults
- A focus on play-based activities and routines which allow children to take the lead in their own learning
- Support for communication and language
- Opportunities to move and be physically active.

4. Pedagogical Transition from EYFS into Year 1
A fundamental problem in England is the discontinuity between the EYFS and the Key Stage 1 curriculum and its associated pedagogy. This is something Fisher's (2009; 2011) two studies recognise, and she urges that there is a need to re-think children's educational experiences in English early years classrooms because of the identified discontinuity between the play-based and child-initiated EYFS curriculum and the more structured adult-led primary curriculum. Fisher reports on an action research project in one local authority where teachers wanted to explore and develop what they termed '*developmentally appropriate teaching*' (2009, p.34), whilst still meeting government expectations. Teachers, parents and children were involved in surveys about transition from EYFS to Year 1. Teachers from both EYFS and Y1 overwhelmingly expressed doubts about the degree of contrast, with broad agreement about supporting more continuity of pedagogy into Y1. Parents, also from both year groups, responded and were more divided between those who worried about the change and those who thought change was overdue. Children's views (all from EYFS), while generally positive, also contained terms of anxiety or regret about leaving the secure Reception base. Although the paper refers more to experiences in the Year 1 classroom, the suggested changes required to move towards more developmentally appropriate, or sensitive practice in Year 1, are equally valid to many formal Foundation Stage classes. The suggested changes were in relation to:

- The indoor and outdoor environment;
- The value of play;
- Classroom organization in whole-class versus small group teaching;
- The value of non-participant observations;
- Flexible planning;
- Timetabling.

Fisher points out that the most important point when trying to bridge the two curricula was that staff needed to develop an understanding of, and trust in, how teaching and learning takes place in a play-based, developmentally appropriate classrooms.

Huf (2013) also reported on how children in her research cooperated submissively or non-conformingly in the process of adapting to school. The purpose of her research was to explore children's agency in the new, more teacher-directed school environment. She describes how in an adult-directed conversational activity with the teacher, the children referred to past experiences to contribute to the activity in a meaningful way and at the same time meet the teacher's expectations. Her comparative research between England and Germany highlighted that although the English *performance model* often limits learning to pre-determined outcomes, some children were creative when trying to collaboratively incorporate their own relevancies into teacher-set tasks. Huf's research highlights how children are active agents, and one way some children brought meaning into their learning. An important factor in being able to adjust well in their new school environment was that they moved up with children they knew. It is interesting to note Huf's proposition that staying in a familiar peer group *'facilitates children's agency of bringing in their own ideas and interests into the new classroom, even if the learning situations become more structured and prescriptive than they were before'* (p.73).

Key Points

1. **There remains strong evidence of the value and benefits of a play-based pedagogy for children throughout the Foundation years and even beyond.**

2. **A 'balanced' or 'hybrid' teaching approach, blending adult-framed activities with play-based, child-led, relational approaches, and incorporating adult-scaffolded learning objectives, can effectively support mathematical, literacy and communication and language development.**

3. **There is a particularly important role for relational approaches with adult-child and peer-to-peer interaction where the child plays an active role in their learning, particularly for language and communication development.**

4. **Transitions in pedagogic approaches from Reception to Year 1 can be difficult for both teachers and children to navigate, and both need support to manage this transition successfully.**

Specialised Pedagogic Approaches

In addition to these generic pedagogic approaches, there is some evidence on the value of particular pedagogic approaches for each of the prime and specific areas of learning.

1. **Personal, Social and Emotional Development**

Diamond et al's (2007) study that used guided play throughout a school day to help pre-school children learn how to curtail impulsive behaviours and responses found executive

function skills (attention, problem solving, and inhibition) were also nurtured and these impacted on attainments in mathematics and reading. Broadhead's (2009) practice-based research in a school in North-East England explored the value of play in learning. In this school they were looking for a solution to escalating conflict and unacceptable behaviour. …Broadhead suggested that '*play and regular peer engagement in problem-solving and personally relevant activities may be more effective and more likely to promote learning*' (p.107). The vignettes referred to from the research illustrate how play stimulated social skill development in a naturalistic way. This study supports the notion that the opportunity to play is very important for learning; however, Broadhead points out that in teacher-directed classrooms, play is often used as a reward rather than as a potentially valuable learning experience. Broadhead therefore advocates an increase in child-initiated and child-directed play, in other words, a playful pedagogy as opposed to intervention programmes to improve social skills in the early years. Her call to '*let us give play back to children rather than compensating them for its loss through intervention programmes*' (p.115) is very pertinent.

Hedges and Cooper (2014) talk about approaches that nurture positive dispositions in young children and define these concepts drawing on Carr and Claxton's (2002) work. The most important message from this paper is how clear documentation is needed to make visible children's thinking '*that will lead to recognisable academic learning in the future*' (p.401). Hedges and Cooper conclude their paper by promoting a play-based pedagogy based on six principles:
1. Making the learning process visible;
2. Valuing content and process;
3. Emotionally engage the learner by building on children's interests;
4. Supporting challenging tasks;
5. Developing relationships with children and families;
6. Reflection and responsibility.

Goodliff's (2013) work has drawn attention to understanding children's spirituality, where research is scarce. The ethnographic study highlights that children's spirituality is multi-dimensional and how children express spirituality through their daily imaginative play spaces. She suggests children's spirituality should be recognised and understood in education because it helps children to express their thinking, to negotiate identities and make meaning.

2. Communication and Language

The research evidence linking play with language development draws on socio-cultural and social semiotic theories. Recent research on children's social and communicative practices in play emphasises multimodality: communication happens through verbal and non-verbal modes such as body language, gestures, movement, eye contact, facial expressions, the creative arts, and digital representations. Play enables communication through symbolisation and representation via drawings, models, constructions, paintings, and artefacts (Payler et al, 2017, p.50). Marshall and Lewis's (2013) qualitative study of the impact of the child's environment on language development of children aged 3-5 shows how role play can support the development of speaking and listening skills for pupils who have English as an additional language. This study showed that the use of role play as a teaching strategy resulted in improved use of English and wider range of language. Baines et al's (2015) ethnographic study of a single practitioner in one combined nursery/reception unit in a primary school pointed

to the need for a multi-layered teaching approach which includes children, staff and parents all seeing language development as a priority in the learning offered.

Bilton's (2012) study of adult-child interactions in four Nursery/Reception classes revealed a preponderance of adult-initiated interactions despite the finding that when the child initiated the conversation there were more extended child utterances. This may suggest that children wish to be involved in conversations of depth and meaning and that staff need to become aware of how to develop this conversational language with children. Studies have also reinforced the importance of giving children more turns in conversation between adults and children in supporting their vocabulary and communicative competence more widely (Romeo et al, 2018; Zimmerman et al, 2009; Weisberg et al, 2013).

King and Dockrell's (2010) quasi-experimental investigation of the impact of an oral language intervention programme for pre-school disadvantaged children with poor language skills in three Nursery classes (96 three-year-olds who were non-native English language learners) found that regular evidence-based, oral language interactions can lead to significant improvements in children's oral language. The intervention had a significant effect on vocabulary, oral comprehension, and sentence repetition but not narrative skills. This study suggests that targeted intervention programmes can play a role in the teaching of communication and language.

The Study of Early Education and Development (SEED) aims to find out how childcare and early education can help to give children the best start in life and what is important for high quality early years provision, with a particular focus on the development of Communication and Language for less advantaged children. The published report by Melhuish and Gardiner (2018) suggests that high quality early years settings often prioritised creating a language-rich environment through the use of songs, nursery rhymes, stories and providing time for adult-child and peer-to-peer interaction.

Although we have not reviewed the research on bilingual learners or children with additional languages, socio-cultural contexts in supporting language development are significant: studies have shown how exposure to a variety of languages created different phonological systems (DCSF, 2009). Guilfoyle's (2013) case studies of four pupils in a Reception class and seven practitioners focus on how role play can support the development of speaking and listening skills for pupils who have English as an additional language. This study showed that the use of role play as a teaching strategy resulted in improved use of English and wider range of language.

In a research review conducted by Hulme and Snowling et al. (2011) and Silke Fricke et al's (2012) RCT study of 180 children from 15 UK nursery schools randomly allocated to receive a 30-week oral language intervention (or control group) continuing with daily sessions on transition to Reception class (pre-Year 1), it is seen that where vocabulary knowledge is not well established in the early years, later literacy is directly impacted, with difficulties and educational underachievement experienced. Silke Fricke et al's research also found that an oral language intervention programme in Reception supported less advantaged and EAL (English as an additional language) children to significantly increase their outcomes on

measures of oral language and spoken narrative skills, which provided the foundation for better performance on reading comprehension.

With recognition that a child's vocabulary supplies the cognitive foundations of both reading accuracy and reading comprehension, the longitudinal study by Duff et al. (2015), which assessed 300 children's phonological and reading skills at 16 - 24 months and again five years later, reiterates the longitudinal relationship between children's pre-literacy vocabulary knowledge and their subsequent reading ability.

3. Physical Development

Several studies have examined the opportunities for physical development that are afforded by outdoor spaces. Recent research highlights three connected themes relating to outdoor play: a focus upon natural and unstructured environments, the provision of flexible resources, and the ways in which such environments and resources support peer-peer and adult-peer interactions (Payler et al, 2017, p.53). Evidence put forward by Chalke (2016), in a case study of a physical activity intervention programme in one school, indicated the importance of outdoor and physical experiences as an enabling environment for language development and creativity, particularly for boys, where the vocabulary used outdoors was seen as more expressive and wider ranging than that used in indoor and static learning contexts.

Jarvis (2007) conducted an ethnographic study of children's outdoor play activities (age 4.5-6.5 years) focusing on early football play amongst a group of boys. Despite the 'rough and tumble' appearance of their play, the analyses revealed subtle cultural cues and practices that shaped and sustained the play. This included peer support, social relationships, rule negotiation, collaborative and symbolic interactions, mediation of rules and 'fair play', and the development of motor skills, all of which support the development of PSED. The interviews with adults revealed negative perceptions of this form of play, based on perceived dangers, accidents and injuries, and damage to children's clothing. Jarvis argues that the complexity of the play was invisible to the adults because they did not look beneath these preconceptions.

Waters and Maynard (2010) studied child-initiated interactions with adults in a natural outdoor environment. Their research in a primary school in Wales identified young children's interests in unstructured, flexible outdoor spaces and materials. Waters and Bateman (2015) also argue that interactional features of learning and teaching moments in outdoor environments (between peers, and between peers and adults) are critical to children's learning, particularly those that incorporate aligned intersubjectivity and extended interactions. Such environments offer a potential stimulus for interactions between teachers and pupils that are based upon children's ideas and questions rather than adults' intentions.

With a focus upon peer-peer engagements, Waite, Rogers and Evans (2013) report a study of micro-level social interactions in the outdoor learning spaces attached to eight Foundation and Y1 classes. The authors report that outdoor play was associated with lower levels of adult regulation compared to indoor spaces, and that greater freedom enabled different ways for children to engage with each other and to share in playful experiences. Waller's (2007) study of play in a wild natural environment found outdoor play afforded opportunities for children to reveal their own agendas and interests in dialogue with adults.

It is also widely agreed that physical play is important for promoting discovery of movement abilities; allowing for exploration of the movement environment; offering practice time to enhance fundamental motor skills and strengthen the cardio-vascular system and the muscles. Archer and Siraj (2015) explored movement-play quality in early childhood settings and its implications for learning, highlighting the importance of promoting physical literacy. They note how the role of movement in early childhood has been overlooked by policy makers, particularly in assessing the physical development of children with special needs. They consider that if very young children's balance, posture and co-ordination are securely developed, they are better equipped to cope with the demands of school and note the research that suggests how exercise can alter brain functioning underlying cognition and behaviour.

4. Literacy

Traditionally, early writing research has focused on the processes of children's writing whereas contemporary evidence shows that children learn about written language through active engagement in their social and cultural worlds (Bradford and Wyse, 2013; Daniels, 2014). Literacy has been shown to be a social and cultural practice, (Street, 1995, Gee, 2008) that varies significantly across time and place (Gutierrez, Bein, Selland and Pierce, 2011). For example, young children engage with digital and non-digital literacies across their home and school experiences (Davidson, 2009). Evidence shows that literacy pedagogy radically shapes children's understandings of what literacy is and who it is for (Levy, 2011). It suggests that early years practitioners need to adopt a responsive approach to the use of resources and provide a literacy curriculum that is adapted to children's needs (Ellis and Smith, 2017) giving children opportunities to develop reading and writing skills that are well-matched to their learning needs (Pressley et al. 2001). It is also evident that children's spatial and material experiences of classrooms and classroom pedagogy shape children's literacy practices (Lancaster, 2014: Rowe, 2008). Early literacy learning can be seen therefore as an embodied experience (Olsson, 2009).

Studies indicate that exploratory play is of utmost significance in early literacy learning. Young children are guided by synaesthetic activities which draw on all their senses (Kress ,1997) and children participate in schooled literacy as they remix this with their home and community experiences and concerns (Genishi & Dyson, 2009). Play can be seen as a productive literacy that draws on gestural, spatial and material modes and offers children diverse sites for participation (Wohlwend, 2011). Collaborative narrative play and the texts that arise from their play support children's narrative competence, which in turn supports the symbolic representation skills needed for reading and writing (Sawyer and De Zutter, 2007). Two case studies also indicate the role of socio-dramatic play as a potentially valuable teaching tool in literacy learning. Boyle and Charles (2010) case study of a five-year-old's writing development revealed the role of teacher-scaffolded socio-dramatic play in supporting a writing activity and the development of early years writing. The study documents the use of a play/literacy connection (socio-dramatic play) which served to unlock and support the child's writing/spelling development.

Daniels (2014) study explored the ways in which a group of four five-year-old boys in a school Reception class collaboratively used narrative/dramatic play and the available space and materials around them in order to exert cultural agency through the collaborative creation of

written texts. This study indicated that early writing development should be viewed as more than a set of individual and predefined set of skills to be acquired but rather seen as part of a wider socio-cultural construction, which is effectively supported through socio-dramatic play. This study resonates with McGuinness et al (2014) longitudinal study of the effectiveness of an 'Enriched' or play- based curriculum mentioned earlier, which makes a case for the longer term effectiveness of this approach for the teaching of both literacy and mathematics.

Finally, a small scale qualitative case study by Levy (2009) in one school looking at the teaching of literacy in six Nursery and six Reception classes over an academic year revealed that the reading scheme (Oxford Reading Tree, based on synthetic phonics) shaped the children's perceptions of themselves as readers, as well as defining constructions of 'reading'. The study also found that the dominant use of a reading scheme was seen to discourage some children from attempting to read any book, including those existing outside of the scheme. Although the study did not measure children's reading outcomes from the intervention, the authors argue that early years educators should use staged reading systems with caution and actively encourage children to value a wide range of reading skills and texts.

It is evident in recent evidence reviews (Pascal, Bertram et al., 2017; Payler et al., 2017) that when a child is given freedom of expression within stimulating environments that support rich dialogues and cover a breadth of learning (numerous displays, abundance of graphical resources representing different modalities and materials, musicality and music), emerging symbolic languages such as writing and mathematics emerge, reflecting children's growing competencies and understanding.

The debate continues as to whether children should receive a systematic phonics programme and the evidence regarding different phonics programmes for young children is limited and mixed (DCSF, 2009). Ferguson et al. (2011) conducted a study with five and six-year-old children from a disadvantaged community and found that significant improvements were made as a result of the intervention in children's word reading, spelling and reading comprehension. However, Clark (2013; 2014) offers an evidenced-based critique of synthetic phonics and calls for more research to be focused on eliciting young children's views of the phonics tests and how young children's experiences of, and attitudes towards, literacy are affected.

5. Mathematics

With regard to a mathematics pedagogy, the evidence indicates that some adult led teaching is necessary, for instance for understanding number symbols (EIF, 2018), but this should be unpressurised and playful in order to avoid maths anxiety (DEANS, 2019). Track games and picture books have both been found to impact learning, while WWC (2013) recommends frequency of experience in range of contexts. Use of mathematical language, knowledge of learning trajectories and lack of teacher anxiety about maths are also important (Sarama and Clements, 2009; WWC, 2013; DEANS, 2019), pointing to the need for confidence boosting professional development in order to support effective and appropriate pedagogy.

Cremin et al (2015) undertook a qualitative analysis of teaching approaches in 71 early years settings catering for 3-6-year-olds across nine European countries including the UK. Their

work pointed to the valuable role of play, creativity and curiosity in supporting learning processes in science and mathematics, especially where scaffolded by the teacher. Carruthers and Worthington (2006) document children's engagement with mathematical concepts through their play and freely chosen activities, using observations, conversations with children and adults, and analysis of children's drawings and mark-making activities. Children communicate their understanding in multi-modal ways, and pretend play reveals the cultural foundations of early mathematical knowledge in ways that connect home and pre-school experiences (Worthington and van Oers, 2016).

6. Expressive Arts and Design

Nutbrown's (2013) critical review of the international literature relating to the importance and place of early years arts education and her analysis of arts-based learning involving professional artists working with children and aged six months to five years in preschool settings in England concludes that young children's experience in the arts has not been nurtured in ways which support their artistically-attuned development, and arts-based learning in the early years is not clearly conceptualised. The paper identifies the need to provide children with greater recognition of their efforts in the arts and more adult models or users and makers of art. It further concludes that where arts-based approaches to learning are derived from research, and refined through embedded practice, children are able to learn in ways which are naturally suited to their human condition and therefore better equipped to take part in cultural and artistic elements of life as identified in the United National Convention on the rights of the child.

Given the shortage of evidence from studies in relation to this area of learning, we looked at the evidence presented in recent wider reviews of evidence. The BERA Review (Payler et al, 2017) suggests that offering teaching and learning experiences with different modalities and materials can support all areas of learning, and particularly literacy and language, so rich dialogues, numerous displays and an abundance of graphical resources within a stimulating environment covering a breadth of learning should be provided. Musicality and music are also considered to be important for interaction and communication, cross-culturally and intuitively supported by practitioners. The report highlights how singing in the early years contributes to children developing a sense of belonging and identity and offers possible correlations with self-regulation.

7. Understanding the World

McNerney and Hall (2017) in their action research study in a Reception class in one school suggest that research on effective science or, as currently promoted, STEAM (Science, Technology, Engineering, Arts and Mathematics) teaching in early childhood is an area that has not received much attention despite the fact that that early years teachers lack confidence in teaching this area of learning and often have a weak knowledge base. Their work suggests that science or STEAM teaching in the early years is not well-developed and there is a need to build teacher competence and confidence in this area of learning but this claim needs further investigation. In the field of science and technology, Kambouri (2016) has

shown the importance of teachers dedicating time to identifying children's 'pre-conceptions' in science but in practice has found that teachers often did not do this, indicating a lack of appreciation of the importance of children's preconceptions or the consequences when ignoring them. The results also indicate the need for further training and professional development in relation to the teaching of early years science, especially since only a very small percentage of early years teachers tend to study science during their years of compulsory education. Cremin et al, (2015) highlight the link between the teaching and learning of science and creativity, highlighting the pedagogic synergy between the two, and especially emphasising the value of play and exploration, motivation and affect, dialogue and collaboration, problem-solving and agency, questioning and curiosity, reflection and reasoning, and teacher scaffolding and involvement in teaching approaches.

An aspect of Understanding the World on which there is some recent evidence is that of People and Communities and the child's place within this. There are two papers which demonstrate the importance and effects of pedagogic approaches which support the active participation of children in classroom decisions and learning as a means of understanding citizenship, belonging and social cohesion (Nutbrown and Clough, 2009; Harcourt and Einarsdóttir, 2011). For example, Nutbrown and Clough's (2009) small scale action research looks at the child's understanding of their citizenship, (an aspect of Understanding the World) and explores issues of children's participation and voice in their daily life and learning. This work demonstrates the effectiveness of including young children in commenting on and improving their learning environments. The paper argues that including children in the identification and exploration of issues important to them in their classroom promotes a positive sense of inclusivity and that such approaches to developing pedagogies of citizenship and belonging constitute a practical enacting of 'voice'. Harcourt and Einarsdóttir's (2011) report of a small scale study involving 15 children from 3 to 6 years, where their views on their daily life were documented, also supports the notion that a community can provide the structure and procedures that enable children's participation as active citizens in their daily life and should view the child as a competent and capable contributor.

A significant new focus in this area of learning is on children's digital play and their engagement with ICT resources in home and education settings. Children are becoming digital experts as they move between different modes, interact playfully with resources (digital and traditional), and engage in multi-modal ways of learning, often with the support of peers and adults. Three themes are evident in recent research: children's use of digital media and their digital play, teachers' knowledge and understanding of ICT and digital play in the curriculum, and home-school practices (Aubrey and Dahl, 2008).

Key Points:

1. **Play-based pedagogic approaches are effective across all areas of learning in enabling the child to progress and fulfil their potential.**

2. **Adult-scaffolded socio-dramatic play may be a potentially valuable teaching tool in Literacy learning.**

3. **Adult-scaffolded, play-based teaching approaches that encourage creativity, supported by some adult-led teaching will support early Mathematical learning.**

4. **Teaching approaches that incorporate high levels of adult-child interactions or sustained conversations of depth are important in supporting all areas of learning, but particularly Communication and Language Development.**

5. **Creating a language-rich environment through the use of songs, nursery rhymes, stories and time for adult/child and peer-to-peer interaction are effective teaching strategies.**

6. **Targeted intervention programmes can play a role in the teaching of Communication and Language in Reception classes alongside enriched play experiences.**

3.7 Research Gaps

1. This evidence review has also shown the gaps and limitations of existing recent evidence: There is relatively little quality evidence on the teaching content of pedagogic approaches suitable for under-threes in all areas of learning.

2. There is little quality evidence on the effectiveness of teaching content and pedagogic approaches for science, technology and the wider aspects of Understanding the World in early years classrooms.

3. There is little quality evidence on the role of creativity and the Expressive Arts and Design within an early years curriculum and its contribution to wellbeing, learning and development across all areas of learning.

4. There is little rigorous qualitative or quantitative research focused on the curriculum and pedagogic transitions from the EYFS to Key Stage 1 and how this affects children's learning progression and outcomes.

Part Three: Reflections and Action Points

4. Reflections on Overarching Review Questions

This review was designed to provide an overview of recent evidence to enable an informed response to the current review of the statutory guidance on EYFS. In particular the evidence was designed to address two overarching questions:

How far does the rationale for the prime and specific areas and the characteristics of effective learning reflect current knowledge about early learning?

What aspects of the EYFS are affirmed and what needs adjusting based on evidence from the last 10 years?

The research reviewed for this paper, and presented under the 6 sub-questions, shows that there is recent research evidence which informs these questions, but that it is of mixed quality and relevance. Some of the review sub-questions have a strong bank of evidence to draw on, whilst for other questions it is harder to locate quality evidence that is relevant.

The evidence suggests that there is no substantiated case for the EYFS Statutory Framework to be significantly changed. However, less advantaged children continue to underachieve and this perpetuates the gap as they progress into primary schooling. Given this context, a closer examination of the recent evidence reveals that with some modifications, particularly in relation to the guidance on Communication and Language Development, and giving greater prominence to the Characteristics of Effective Teaching and Learning, these children might be better served. The key messages from the review and suggested modifications to the current EYFS are summarised below.

Prime and Specific Areas of Learning
The recent research supports the continuation of a distinction between Prime and Specific areas of learning, supporting the rationale that Personal, Social and Emotional development, Communication and Language Development and Physical Development should receive particular attention throughout the Foundation years and into Year 1. There is little evidence to support a shift in emphasis towards Literacy and Mathematics as priority areas of learning in the EYFS. However, there is clear evidence that the Characteristics of Effective Teaching and Early Learning and PSED should be given more prominence in the EYFS Framework as they are shown to underpin all areas of learning and support children's health and wellbeing.

Characteristics of Effective Teaching and Learning: There is strong evidence that a wide range of skills and dispositional capacities are vital for a child to make developmental progress and underpin attainment at all ages. Key learning capacities and attributes have been identified as underpinning learning in all domains which are supported by a set of attitudes and dispositions related to self-regulation including intrinsic motivation, attention, determination, resilience, self-control, sociability, precision, perseverance, curiosity, self-esteem and the

ability to defer gratification. These attitudes and dispositions are central to academic success and underpin attainment in all areas of learning, including mathematics, literacy and communication and language. The Foundation years are a critical period for the development of these skills, attributes and dispositions and supporting their development should be a priority for the EYFS.

Personal, Social and Emotional Development: The studies suggest that social and emotional development are central to academic success and underpin attainment in all areas of learning. Personal, social and emotional skills shape children's ability to interact, make positive relationships, work within a group, as well as provide a sense of self-efficacy, agency and self-esteem. They also shape mental health and well-being. It is shown that the Foundation years are a critical period for the development of these skills and so should feature strongly in Foundation Stage teaching and learning.

Physical development: The studies suggest that Physical Development is associated with educational attainment and that physical and mental wellbeing are critical in shaping both the capacity of the child to learn and their ability live a healthy, productive and fulfilled life. This is a particular issue for less advantaged children. The importance of outdoor play and learning is strongly evidenced in recent research, encouraging active, exploratory learning experiences which support all areas of learning.

Communication and Language: The core of language acquisition occurs between 1 to 4 years, with children acquiring much of the necessary basic phonology, syntax, and vocabulary during this time. Language development prior to beginning school serves as the backbone of later literacy development. The evidence suggests that communication and language proficiency is a key capacity within other areas of learning, including mathematical and literacy learning, and that delayed language prior to starting school persists to affect ongoing attainment, and is especially pronounced where English is an additional language or disadvantages are experienced at home. Several studies provided evidence that a clear focus on oral language development, and in particular expressive and oral vocabularies, for children who are disadvantaged or with EAL may be particularly necessary through Reception and into Year One. Teaching content should include extensive support for communication and language development, especially for less advantaged children and children with EAL. This content should include theoretically motivated interactions, expressive and receptive skills, and clear support for extending children's oral language, vocabulary, oral comprehension, and sentence repetition. Role play and small group times offer an effective means for delivering sustained conversation and language development, offering opportunities to hear and practise language. Studies of teaching and learning indicate that diverse vocabularies should be experienced within language-rich environments of songs, nursery rhymes and stories and it is essential to give children time to interact, adult/child and peer-to-peer, to listen to sounds and to develop appreciation for the nuances of language. The evidence would appear to support the case for a strong focus on Communication and Language development in EYFS settings and the need for professional development for early years practitioners to ensure they have the professional knowledge and understanding to better support this prime area of learning.

Literacy: This evidence suggests that Literacy is dependent on a securely developed understanding of spoken language, vocabulary and listening comprehension skills and that literacy learning should start with enabling communication and language skills, which supply

the cognitive foundations of both reading accuracy and reading comprehension. Focusing too soon on Literacy outcomes during the Foundation years may be detrimental to the longer term attainment of those children who are not yet secure in oral Language outcomes, including an understanding of how language works in the wider social and cultural context.

The studies indicate that pre-literacy development needs to include verbal short-term memory and retention, visuospatial memory skills, phonological awareness, print knowledge and rapid naming skills along with visual search and auditory processing. Teaching content should include reading aloud words, rhymes and stories. Initial understanding of writing conventions is gained through experiences of reading. Teaching content for writing composition should reflect that this is built through spoken language and the comprehension of stories or narratives about experiences, sequencing sentences to form short narratives and re-reading for sense. Children's engagement in writing should be sought within narrative play, space and materials as literacy practices create a range of meaningful texts. Additionally, confidence in phonics requires a systematic development of phonic knowledge, print knowledge and cognitive factors of working memory and vocabulary. Children need to develop methods of extracting meaning from text, decoding and comprehending the language used. Systematic phonics programmes can strengthen reading skills but simplified phonics programmes, teaching only the most consistent mappings plus frequent words by sight may be more effective in comparison with other phonics approaches for children who have poorer phonological awareness. The potential of technologies offering new dimensions to literacy learning could be better explored.

Mathematics: This evidence suggests that children need to first grasp basic mathematical concepts, eg equivalence, as a basis for engaging with formal mathematical skills such as counting, numerical recognition and the additive composition of number. Mathematical teaching content with young children should include the use of practical activities, offering children opportunities to manipulate resources, as this aids their understanding through visual imagery, and traditional games, which allow children to apply their counting and early calculation skills. Teaching should also offer opportunity for problem-solving within social contexts as a primary medium, with mathematical language, multi-modal forms of representation, and play, shown to be significant in supporting conceptual development. Additionally, teaching should allow and actively support opportunities for children to freely explore how they represent their mathematical knowledge and understanding by drawing on their personal and cultural knowledge in pretend play.

Understanding the World: The evidence reveals that early years practitioners may lack confidence and competence in the teaching of science, and that the teaching of science and technology in the early years is not well articulated and understood. Additionally, the evidence indicates that the impact of digital technology on children's lives and on Reception class practice needs further exploration and development. There is also some evidence that developing children's confidence in their citizenship and understanding how communities work, and how to sustain social cohesion within groups, is an important and increasingly acknowledged aspect of an effective early years curriculum, underpinning the child's capacity to operate effectively within classroom communities and more widely in their life.

Expressive Arts and Design: The few studies available suggest that there is a need for Expressive Arts and Design to be better conceptualised and understood as a vehicle for

enhancing and contributing to all aspects of learning, as well as being important in ensuring the quality of human life. There is no evidence to suggest the current EAD strands should be changed.

Pedagogic Approaches

There remains strong evidence of the value and benefits of a play-based pedagogy in supporting all areas of learning for children throughout the Foundation years and even beyond. There is also strong evidence that a 'balanced' or 'hybrid' teaching approach, blending adult instruction with play-based, child-led, relational approaches, and incorporating adult-scaffolded learning objectives, can effectively support all areas of learning. This offers a 'blend' between adult-led teaching and free play, particularly as children negotiate the transition between EYFS and Key Stage 1. For younger children, a play-based, relational pedagogic approach appears to be more appropriate. It was also evident that there is a particularly important role for relational approaches throughout the Foundation years, with adult-child and peer-to-peer interaction where the child plays an active role in their learning, particularly for Communication and Language development. Adult-scaffolded socio-dramatic play may be a potentially valuable teaching tool in Literacy learning. Adult-scaffolded, play-based teaching approaches that encourage creativity can also support Mathematical learning. Teaching approaches that incorporate high levels of adult-child interactions or sustained conversations of depth are important in supporting all areas of learning, but particularly Communication and Language Development. Transitions in pedagogic approaches from Reception to Year 1 can be difficult for both teachers and children to navigate, and both need support to manage this transition successfully.

5. Action Points

1. There is evidence to suggest that there should be some modifications to the current EYFS Statutory Framework to give greater prominence to the Characteristics of Effective Teaching and Learning and Personal, Social and Emotional Development to ensure the foundational skills, understandings and knowledge in these areas are securely in place before more advanced, challenging learning is introduced to the children.

2. The evidence suggests that the Characteristics of Effective Teaching and Learning, which support the development of self-regulation and positive learning habits, should be seen as a more central aspect of the EYFS Statutory framework.

3. The current EYFS framework which highlights Personal, Social and Emotional Development (PSED) as a prime area of learning is supported by recent evidence and the current EYFS Early Learning Goals should be extended to cover a wider range of learning dispositions and capacities, including self-regulation.

4. It is particularly important that EYFS children have a confident grasp of oral language and communication before they are moved on to grasp the skills of written forms of language.

5. There should be more focus on conceptual knowledge in Mathematics and practical rehearsal of Mathematical, Communication and Language, and Literacy skills in real world contexts which have meaning for the child.

6. The current EYFS requirements on teaching and learning approaches is supported by recent evidence but the value of a balanced teaching approach which incorporates play-based and relational pedagogic approaches, alongside more structured learning and teaching, needs to be recognised more fully, especially when children are in transition between EYFS and Key Stage 1.

7. Some additional guidance for teaching Understanding the World is needed to ensure that the development of citizenship and children's rights are foregrounded in classroom practice, and more attention is given to the teaching of science and the implications of children growing up in a digital age.

8. It is suggested that more time and attention should be given to supporting creativity (along with problem-solving) in children's development as a capacity which underpins all areas of learning.

9. There is a need for more encouragement and support to be given to the teaching of Expressive Arts and Design within the curriculum, as this area of learning enhances mental health, wellbeing and underpins many other aspects of learning.

10. It is evident that the features of effective pedagogic practice for disadvantaged children are congruent with those found to work for all children and there is no evidence that a different or more intense teaching approach is required. There is strong evidence that these children, as do their peers, need more opportunities for play, language consolidation and extension and opportunities to develop their wider learning dispositions and capacities.

11. To effectively support children within diverse cultural and social norms, for example, recent immigrants, the diversity of learners must be recognised within all teaching content. Teaching content needs to equally recognise life experiences, including acknowledging the different needs of summer born children, and a broader span of social and behavioural competencies.

Recommendations from the coalition based on the outcome of the literature review

The coalition welcomes the Literature Review as a comprehensive statement of current research relating to the EYFS, and we are pleased to be able to make it publicly available to help both practitioners and policy makers increase the extent to which their work is research-informed. We hope that researchers will also seek to address some of the areas which the report identifies as being currently less well evidenced.

The coalition recommends that government act on the evidence in the report when conducting its review of the EYFS, and that any changes should be based on the following key principles:

1. **Recognising the central importance of the Characteristics of Effective Teaching and Learning** which has been emphasised by the growing body of research on self-regulation and executive function.
2. **Supporting the current emphasis on the Prime Areas within the EYFS as particularly crucial and time sensitive in the early years**, and their foundational nature in relation to all later learning, including the importance of communication and language skills as a basis for literacy, and in turn the importance of literacy in children's long-term attainment and social and cultural life.
3. **Acknowledging the premise that all Areas of Learning are interconnected, demonstrating the holistic nature of young children's development**.
4. **Noting there is no evidence to support giving mathematics and literacy greater emphasis than any other areas of learning within the EYFS**.

Key messages
The coalition wishes to draw government's attention to the following key messages:

- **Any changes made to the EYFS should be judged primarily on whether they help to get the EYFS right for children** as demonstrated by the research evidence on what promotes children's wellbeing and how young children learn and develop.

- **The changes to the EYFS should reflect the interests, needs and capabilities of children from birth,** noting that although the research evidence was weakest for under 3s, the EYFS needs to reflect appropriate teaching content and pedagogy for all age groups.

- **The distinction between the Prime and Specific Areas of Learning should remain** in order to ensure the time-specific and foundational nature of the Prime Areas continues to be understood.

- **The Characteristics of Effective Teaching and Learning should have a renewed focus in recognition of their importance in relation to self-regulation and executive function.** Self-regulation should not be misunderstood as being solely part of personal, social and emotional development.

- **The holistic nature of learning and development in the EYFS should continue to be emphasised. Care must be taken that delivery of the EYFS is not skewed towards particular Areas of Learning at the expense of others.** The evidence clearly shows the inter-

related processes of learning and development for all seven Areas of Learning and the Characteristics of Effective Teaching and Learning at this stage.

- **The EYFS should continue to promote the importance of a balanced teaching approach which incorporates play-based and relational pedagogic approaches alongside more structured learning and teaching,** especially when children are in transition between EYFS and Key Stage 1.

- **The impact of learning outdoors** is well-evidenced, and it must continue to be a recognised right for all children in the EYFS.

- **The EYFS should emphasise the importance of all children experiencing more opportunities for play, language consolidation and extension and opportunities to develop their wider learning dispositions and capacities.**

Key points relating to the Areas of Learning

Key points from the evidence in relation to each Area of Learning and the associated ELGs are as follows:

a. **Communication and Language** within the EYFS should be focused on promoting communication and oral language development, providing language-rich environments within which children see, hear and practise their language through conversations, role-play and small group time activities. Dialogue and turn-taking are key to vocabulary, comprehension and language use, while developing phonological awareness is also key for later literacy skills. The importance of listening and attention is recognised in the literature as a key component of language development necessary to help children access the curriculum and should be reflected in the ELGs.

b. **Physical development** is closely associated with cognitive development and physical and mental wellbeing. It is important that these aspects are fully represented in the AoL and ELG, and that the latter is not focused solely on gross and fine motor skills, although these are important. Self-regulation of the physical self should be included in this AoL as part of the recognition of the importance of aspects of self-regulation across all AoLs.

c. **Personal, Social and Emotional Development (PSED)** needs to be clearly distinguished from self-regulation within the EYFS so that practitioners understand the difference and the importance of both. PSED should focus on positive relationships, self-efficacy and agency and physical, mental and spiritual wellbeing. It includes emotional self-regulation, but other aspects of self-regulation fall under the COETLs.

d. **Literacy**
Reading and writing depend on strong oral language and communication skills as an essential foundation. The Literacy AoL should promote the development of a broad range of literacy skills – not only reading, writing and mark-making - making the most of children's exposure to songs, stories and conversations, environmental and digital texts, from birth onwards.
Learning to read should take place once relevant skills such as phonological awareness, memory skills and vocabulary and oral comprehension are in place. There should be a single ELG for comprehension and decoding, to avoid undue emphasis being placed on reading at this stage, noting that the current ELG for literacy is already clearly pitched too high given the consistently lower scores achieved compared to other ELGs.

The complex socio-cultural nature of early writing as communicating meanings should be recognised, rather than a focus on mastering a pre-determined list of physical skills.

e. **Mathematics** should focus on practical activities, including manipulating objects and playing games; problem solving within a social context; children exploring their own ways of representing their mathematical knowledge; and children drawing on personal and cultural knowledge through pretend play. Shape, space and measure should be retained in the AoL and as an ELG because of the key role in particular of spatial reasoning for mathematical and wider STEM attainment.

f. **Understanding the World** should include explicit reference to the development of citizenship and children's rights. It should also include early years approaches to science, technology, engineering, and maths (STEM) and to the implications of children growing up in a digital age. Consideration should therefore be given to a revised Technology ELG rather than to removing it.

g. **Expressive Arts and Design** should prioritise exploration of children's creativity and problem-solving skills, not performance, and the ELG should reflect this. The importance of EAD for children's wellbeing should be emphasised.

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