

**Teaching Phonics in Context:
A Critique of the National Literacy Strategy**

Paper Presented to DfES Seminar

Teaching Phonics in the National Literacy Strategy

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1 Introduction

In response to research into teaching reading and evaluations of the National Literacy Strategy (NLS), the Standards and Effectiveness Unit within the Department for Education and Skills (DfES) established a standing group of experts and practitioners to review and refine the NLS and National Numeracy Strategy (NNS). Part of this process involved a seminar where a small number of academics and researchers were invited to make a ten minute presentation to the standing group on teaching phonics within the NLS. In preparation for this seminar the NLS produced a paper (DfES, 2003b) which summarised the strengths of the NLS and highlighted those areas which could be amended in the future. The DfES invited those making a presentation to prepare a paper on how their research could inform the development of phonics within the NLS. This paper offers a response to that invitation and provides a critique of phonics teaching in the NLS which is informed by general literacy research and the research undertaken over the last decade within the Early Reading Research (ERR).

Although there is now an extensive research literature on how children learn to read, much of it conducted by psychologists, there have been relatively few studies which have attempted to evaluate the impact of recent research findings in the classroom. Studies are typically conducted by researchers, rather than teachers, over relatively short times scales with relatively few teaching sessions. There is therefore, a need for classroom-based research which demonstrates that research outcomes can be developed into coherent programmes of work which can be implemented by teachers over extended periods, until children have learned to read, write and spell. The key issue is whether certain ways of teaching lead to significantly greater gains in children's literacy skills than others. The NLS was implemented in the belief that it represented all that is best about teaching literacy. However, this belief was not supported by any classroom-based experimental research.

Changes are about to be proposed to the NLS, particularly the phonics component, which teachers will probably be expected to incorporate into how they teach reading. However, it is unlikely they will be informed by any appropriate classroom-based research. The purpose of this paper is to provide an overview of: (i) past research; (ii) the paradigms which have been used to investigate how children learn to read and how best to teach reading; (iii) the main research outcomes and (iv) the issues which need to be addressed when evaluating future recommendations on how to teach reading. It will be argued that teachers can only begin to feel confident about recommended changes when they are underpinned by classroom-based research which can be incorporated into a coherent theoretical and practical framework for teaching literacy.

The paper begins by reviewing the research into teaching phonics and the most effective ways of teaching literacy and identifies a number of issues which need to be addressed when translating research outcomes into classroom practice. It then summarises the ERR which has evaluated a framework for teaching reading, writing and spelling through a series of large-scale classroom-based experimental studies. Studies have been conducted over two to three years and compared the impact of the ERR framework on children's reading and spelling with conventional practice, the National Literacy Project (NLP) and the NLS. The framework includes major components on teaching phonological and phonic skills that demonstrate how these skills are applied to reading a wide range of texts (fiction and non-fiction). The ERR framework is unique in combining phonics teaching with the use of 'real books,' which are typically seen as alternative rather than complementary approaches to teaching reading (see Section 3.2). The ERR framework was implemented by teachers within Key Stage 1 on a whole class basis.

Finally, the paper highlights the implications of the ERR for teaching phonics where it is argued that if the Government wants to increase literacy attainments in

Key Stages 1 and 2, fundamental changes are required, not only to the contexts, content and methodologies through which phonics is taught, but also more fundamentally, to how children are taught to read, write and spell. It is argued that ultimately, changes in the phonics curriculum will only have a significant impact when broader issues related to teaching and learning are also addressed. This view contrasts sharply with those conveyed by Brooks (2003) and the DfES (2003b) where it is claimed in the NLS paper that the main problems lie in the delivery of phonics within the NLS rather than in its content, *'it is the contention of this paper that the design of the NLS, is broadly correct and that the issues of improvement are more to do with its implementation than its design (p1).'*

2 What is the Most Effective Way of Teaching Children to Read, Write and Spell?

In order to evaluate phonics teaching in the NLS, it is necessary to summarise the non-experimental and experimental research which have influenced its development. However, much of this research is psychological in nature and set out to investigate various aspects of children's development and cognition and so was not necessarily intended to have direct applications to classroom practice. It is debatable therefore, whether the outcomes generated by this research have the curriculum implications assumed by the authors of the NLS.

Nevertheless, a major issue for any researcher currently working in the field of literacy is the extent to which research outcomes can be implemented by teachers and lead to an increase in children's attainments. The need to demonstrate the practical applications of research has become critical since literacy standards in the UK are the focus of considerable political activity. The key question to be addressed therefore, is: *'what is the most effective way of teaching children to read, write and spell?'* However, there is very little agreement on the answer to the question which appears

to depend on the methodology through which it has been investigated. To date three different theoretical and research based paradigms have been adopted which are as follows:

- non-experimental research that attempts to identify effective teaching strategies through *analysing teachers' existing classroom practice*;
- experimental research conducted within the areas of developmental and cognitive psychology that *analyses children and their developmental and cognitive processes*;
- experimental research conducted within the area of instructional psychology which instead of analysing either existing classroom practice or children, *analyses and evaluates the environmental factors* (e.g. curriculum content, classroom organisation and teaching methods) that are thought to be instrumental in enabling children to read, write and spell.

2.1 Non-experimental Research

Non-experimental research, which is the favoured paradigm within the field of education, generally attempts to establish effective practice through questionnaires, interviews, classroom observation and case studies. The aim is to try to identify the common strategies which good teachers both say are effective and are adopted in the classroom (Medwell, Wray, Poulson and Fox, 1998; Wragg, Wragg, Haynes and Chamberlin, 1998). Although the research contains many valuable insights into the way literacy was being taught before the introduction of the NLS, it was not always easy to identify the key elements of effective classroom practice that teachers shared. For example, Wragg and Wragg et al. commented as follows on their sample of effective teachers; *'each teacher was unique, bringing her own individual experience of what worked well to her teaching of reading. Their approaches to reading, the*

materials they used, the authors they favoured, the structure of the day, the context in which they taught, their views of pedagogy and of their pupils, were very different (p205, Wragg and Wragg et al., 1998).’

Thus, the culmination of a detailed, systematic research programme resulted in Wragg and Wragg et al. being unable to identify any common instructional strategies employed by teachers. Instead what they identified as the common features of effective classroom practice were aspects of teachers’ personalities and attitudes, such as their motivation, expectations and professional knowledge. In addition, given what is now known about the importance of teaching phonics, it is interesting to note that Medwell and Wray et al. and Wragg and Wragg et al. found that prior to the NLS, phonics tended to be taught to lower achieving pupils in Key Stage 2 as a remedial intervention, rather than to all beginning readers.

Wragg and Wragg et al.’s research reflects the numerous methodological problems with basing conclusions about effective teaching on non-experimental methodologies, particularly classroom observation and case studies (Solithy, Deavers, Kerfoot, Crane, and Cannon, 1999; Solity 2000a; Solity, Deavers, Kerfoot, Crane, Cannon, 2000). These can be summarised as follows: (i) the research identified correlational rather than causal relationships; (ii) classroom practice is not related to theories of teaching and learning; (iii) the focus is on teacher personality and characteristics (i.e. highly motivated, positive expectations) and general features of classroom practice (i.e whether teachers can differentiate the curriculum effectively and match it to children’s needs) rather than instructional strategies; (iv) the criteria through which effective teachers are identified are rarely made explicit and are highly questionable; (v) there is little evidence to demonstrate the effectiveness of the identified teachers and (vi) the research is limited by the knowledge and expertise of the chosen sample and does not acknowledge the possibility that there may be more

effective ways of teaching than those known to, or displayed by, the teachers involved in the research.

Thus, the outcomes generated through non-experimental research tend to be general and rarely have specific instructional implications. However, it goes without saying that whatever research methodologies are adopted it is preferable that children are taught by teachers who are positive, caring, enthusiastic and have high expectations. The critical question within the ERR is whether any teacher, irrespective of their personality or beliefs can become more effective through underpinning their teaching with core psychological principles of instruction.

2.2 Developmental and Cognitive Experimental Research

The psychological research into reading has been highly influential in recent years and has challenged conventional wisdoms about how children read (e.g. the respective roles of word recognition and comprehension skills in decoding). What needs to be recognised however, is that it has investigated aspects of children’s cognition and development, rather than being designed to demonstrate how to improve the quality of literacy teaching. Nevertheless, there have been some attempts to bring the two together which raise a number of theoretical and practical issues which are summarised below. The developmental and cognitive research has addressed three areas:

- the phonological skills that facilitate children’s progress in reading;
- the order in which phonological skills appear to develop;
- how best to teach phonological skills.

2.2.1 The phonological skills that facilitate children's progress in reading: The research aims to identify those early phonological skills which appear to predict children's acquisition of later skills and general progress in learning to read. The research initially suggested that children with good rhyming skills on school entry make better progress in learning to read (Bryant, 1998; Bryant, 2002). More recently it has been argued that knowledge of how to segment words into phonemes is a better predictor of later progress in reading (Hulme, Muter and Snowling, 1998; Hulme, 2002).

Studies in this area have led to the widespread recommendation that children acquire rhyming skills early in their literacy development. However, this research is correlational and so, irrespective of whether rhyming, segmentation or any other skills predict success in reading, generally implies that children's progress can be attributed to their early literacy skills and rarely acknowledges the assumptions on which this conclusion is based.

There are four main concerns in concluding that the skills identified through correlational research should be taught to beginning readers. The first is that progress in reading may be caused by an, as yet, unknown factor rather than children's initial phonological skills. This relates to the second area of concern which is that researchers do not report the early formal (e.g. attending a nursery) or informal learning experiences (e.g. watching television programmes such Sesame Street or listening to stories read by parents and carers) that enable children to acquire phonological competence before beginning school. Children who have early and continued exposure to books at home through parents and carers will not only have an early advantage over children without such experiences, but will also potentially continue to get support from home after they start school. The third concern is that in order to infer that it is children's skills on school entry that impact on their rate of learning to read, it must be assumed that after children start school the teaching

provided is the same for all children, regardless of their baseline skills on school entry. However, this is unlikely to be the case as teachers are expected to adapt and match their teaching to children's skills (a process known as differentiation) and so children may well be taught differently according to their initial baseline skills. The fourth area of concern is that teacher expectations are also known to impact on children's learning and it is likely that children with more advanced literacy skills when beginning school will be expected to achieve to higher levels than those with less well developed skills.

So children's phonological skills on school entry, and subsequent progress, may well reflect: (i) the level of home support that children have received in the past and will probably also continue to receive after beginning formal education; (ii) the extent to which teachers differentiate their teaching for children with different attainments and (iii) teacher expectations.

2.2.2 The order in which phonological skills appear to develop: The debates about the order in which phonological skills develop centre on whether children acquire decoding skills at the level of large units such as onsets (initial consonants in the written word e.g. c in cat; pl in plot) and rimes (vowel plus any following consonants e.g. at in cat; ost in lost) before smaller units such as grapheme-phoneme correspondences (GPCs).

The research into when children develop different phonological skills is of significance because it is frequently argued (Goswami and Bryant, 1990) that this order should then reflect the sequence through which they are best taught. It is assumed that a developmental sequence leads directly to the most effective instructional sequence. Although the rationale for this assumption appears reasonable it is nevertheless, extremely questionable in reality, when the amount of information children have to memorise, and the generalisability of taught items, are taken into

account. What may be easiest to learn may not be useful in the long term because it is of low utility and has low generalisability to unseen items. Alternatively, skills and knowledge which might be seen to be difficult to learn may be highly generalisable and so in the long term, prove to be highly valuable. There is considerable evidence that onset-rime awareness precedes phoneme awareness (Bowey & Francis, 1991; Treiman & Zukowski, 1991, 1996). However, the critical issue is that it is not clear whether children benefit from beginning word-level reading instruction with onset-rimes.

Carnine, Silbert and Kameenui (1997) have identified the sequences through which phonological skills are *most usefully* taught to beginning readers, irrespective of the order in which they appear to be acquired. Usefulness in this context is determined by considering the extent to which the phonological skills taught are generalisable and the demands any tasks make on children's memories. Carnine and Silbert et al. (1997) report studies demonstrating that beginning readers should initially be taught GPCs through the following word sequence: VC (e.g., am), CVC (e.g., sat), CVCC (e.g., bump), CCVC (e.g., skip) CCVCC (e.g., stamp) before being taught letter combinations (where a single phoneme is represented by two or more letters) and larger units such as prefixes and suffixes. This sequence is seen to maximise generalisation and minimise what children have to remember, particularly when compared to the memory load involved in reading the same words through onset-rime (Solity and Deavers, 1999; also see Section 4 in this paper). Thus, a major concern with this area of research is that it is highly questionable whether developmental sequences translate into suitable instructional sequences.

2.2.3 How Best to Teach Phonological Skills: The third area of research has been into the most effective ways of teaching phonological awareness. Troia (1999) reviewed 39 experimental studies that taught phonological awareness skills to

children and noted that only 12 involved classroom-based interventions. The mean intervention period was 11 weeks and the mean number of teaching sessions 32, neither figure reflecting the type of interventions required by schools to raise attainments over an academic year or more. Troia found that the most rigorous studies were the least representative of typical classroom instruction. He concluded, '*although investigators should not disregard their responsibility for employing sound research methods, the educational community must be prepared to accept compromises and innovations in experimental methodology and alternative investigative paradigms so that ecologically valid treatments are available for field use* (p34).'

Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, and Shanahan (2001) present evidence from the National Reading Panel's meta analysis on the ways in which phonemic awareness instruction helps children learn to read and also found that interventions were of short duration and delivered by researchers. The majority of studies reviewed (approximately 70%) involved less than 20 hours instruction where the intervention (approximately 75%) was delivered by a researcher or person other than the classroom teacher. Transfer to reading was greatest for children who were at risk of reading failure rather than for children making normal progress or those deemed to be reading disabled.

A number of issues need to be addressed when evaluating the research into how best to teach phonological skills. The first, which Troia (1999) highlights, concerns the extent to which research outcomes can be generalised to classroom contexts by teachers and contribute to a rise in children's attainments, particularly those children perceived to have difficulties. Much of the psychological research exploring the relationship between phonological skills and reading is divorced from the classroom and is delivered by researchers over relatively short time scales and so rarely addresses the school-based instructional factors contributing to children's progress.

The second issue concerns the validity of concluding that any differences in outcomes between the experimental and control groups can be attributed to the different ways in which phonological skills were taught. For this conclusion to be drawn it has to be assumed that all other aspects of the way children were taught to read, write and spell were identical for both groups. As with the research into which phonological skills facilitate children's progress in reading, the research rarely, if ever, reports the nature of children's other literacy activities, outside the context of the experiment.

A third issue, particularly when looking at effect size, concerns the nature of the treatments delivered to the control groups (should one be included) and the extent to which they are comparable to the experimental intervention. For example, Sylva and Hurry (1995) compared the impact of Reading Recovery (RR) with a phonological intervention. RR was delivered to children for 30 minutes a day, on a one to one basis, for six months when children were in Year 2 (aged 6-7). In contrast the control group were given a phonological intervention for 10 minutes, three times a week, within a group context. Furthermore, given recent phonological awareness research the treatment offered to the control group could be seen as highly limited. The research appeared to demonstrate the impact of RR but the question to be addressed is whether the outcomes would have appeared as positive had RR been compared to a better designed comparative intervention. For example, in Study 4 within the ERR (see Section 3), the mean reading age of the six lowest achievers in 14 experimental schools (n=84) at the end of Year 1 was 6 year 2 months, only one month behind their chronological age of 6 years 3 months, and only two months behind children (reading age 6 years 4 months) in the Sylva and Hurry study who had been on the RR programme and who had been in school an extra year (chronological ages in the range 6 years 9 months to 7 years 3 months).

The fourth issue concerns how best to integrate the teaching of phonic skills with the other literacy skills that children need to be taught in order to become competent, fluent readers. There have been few attempts to integrate children's acquisition of phonological skills with broader aspects of teaching reading (e.g. general teaching methodology, reading stories, listening to children read, assessment, spelling, writing etc.) to establish whether their impact can be transferred to everyday classroom contexts.

3 Instructional Psychology and the Early Reading Research

The review of previous research in Section 2 has highlighted the potential limitations of identifying 'good' practice through non-experimental research. Equally the review has indicated that trying to identify the skills which predict future attainments is problematic because of the assumptions made about children's formal and informal learning experiences before and after starting school. Recommendations about how to teach that reflect patterns of children's development are also based on the questionable assumption that developmental sequences automatically translate into the most effective instructional sequences. Finally, intervention studies into the impact of phonological awareness training potentially have limited generalisability to the classroom because they are implemented by researchers rather than teachers, over relatively short periods of time and are rarely related to broader aspects of the literacy curriculum.

The ERR has attempted to address some of the questions, limitations and concerns identified in the previous section and represents the third area of research which analyses and evaluates the environmental factors which are thought to be instrumental in enabling children to read, write and spell. The ERR began in April 1995 prior to the introduction of the National Literacy Project (NLP), the pilot version of the NLS in 1997 and the NLS itself in September 1998. It was a response

to teacher requests to the Director of Education in Essex Local Education Authority (LEA) for greater guidance on teaching literacy. The ERR has investigated the most effective approaches to: (i) improving standards in reading, writing and spelling; (ii) ensuring that all children reach age and skill appropriate targets in literacy and (iii) preventing the occurrence of reading difficulties. These aims have been addressed through a series of classroom-based experimental investigations into the impact of a 'framework for teaching reading' on children's acquisition of literacy skills. The framework is based on recent psychological and educational research and identifies core instructional principles, provides a curriculum for teaching literacy skills, describes how best to combine whole class, group and individual teaching and can be implemented alongside any existing materials in schools.

The ERR is one of the few long-term, classroom-based, experimental, research programmes into the effective teaching of literacy conducted in the U.K. and has involved over 10000 children in approximately 200 schools. The research has been funded by grants of approximately £1.3m from Essex LEA, The Leverhulme Trust and the East Basildon and Clacton and Harwich Action Zones.

Large-scale, classroom-based experiments are critical in demonstrating that interventions can be implemented by teachers and lead to significant and permanent gains in children's learning. Without such evidence it is difficult to justify asking teachers to consider adapting their classroom practice. In addition, it changes the nature of the debate from one which is rhetoric driven, which has invariably dominated discussion about teaching and learning in education, to one that is research and evidence based. However, such experiments also have limitations so the ERR has involved smaller-scale experimental studies into the impact of individual instructional principles and individual components of the framework on children's learning (see Sections 3.5 and 3.6). A final feature of the ERR is the work undertaken

within the field of cognitive modelling (see Section 4) which has helped to identify the optimal number of sight vocabulary and phonic skills to teach.

3.1 Instructional Psychology

The ERR is based on instructional psychology and has been informed theoretically by rational analysis (Anderson, 1990), direct instruction (Engelmann and Carnine, 1982) and behavioural psychology (Wheldall and Carter, 1996). Rational analysis is a theory developed within the field of cognitive psychology that shifts the emphasis from inducing what happens 'in the mind' to looking at the structure of the environment and how it influences children's cognition (Anderson, 1990). Anderson argues that cognition mirrors the structure of the world and that we adapt to the environment in a predictable and statistical manner. Brown (1998) suggests that the cognitive abilities of skilled adult readers should develop in such a way that performance will be statistically optimal with respect to the structure of the English spelling-to-sound mapping system.

The task within instructional psychology therefore, is to design curricula and teaching approaches that enable students to adapt to the structure of the environment, a critical feature of the environment being the books they encounter. Therefore, what we teach has to help children represent the structure of texts they read in a statistically optimal way so that children remember those items which occur most frequently because these will be most useful. For this to happen children have to be taught skills which reflect the statistical regularities in written English and if we want children to experience a smooth transition to adult books, the structure of children's texts should mirror the structure of adult texts.

Within psychology, children's varying rates of progress in learning literacy skills are typically attributed to differences in their cognitive development. According to instructional psychology different outcomes are attributed to

differences in children's formal and informal learning experiences, particularly the content of the reading material they encounter. As far as instructional psychology is concerned, insights regarding effective instruction are gained through an extensive analysis of the various ways reading is taught rather than through analysing the individual differences between children.

3.2 The Framework for Teaching Reading

A framework for teaching reading (see Table 1), based on instructional psychology, has been evaluated throughout the ERR (Solity, 2000a; Solity and Deavers et al., 1999; Solity and Deavers et al., 2002). Key features of the framework are that the only phonological skills (manipulating phonemes in the absence of print) taught are synthesis (a key skill underpinning progress in reading where children combine individual phonemes to pronounce words) and segmentation (a key skill underpinning spelling where children break words up into individual phonemes). Phonic skills (relating graphemes and phonemes) are taught at the 'small-unit level' and start by mapping phonemes to graphemes where each phoneme is represented by a single letter (the sequence is VC, CVC, CVCC, CCVC, CCVCC and CVCe, e.g. in, pot, bend, slip, stamp, cape, respectively). This is followed by teaching 30 core letter combinations (where single phonemes are represented by two or more letters, e.g. sh, ai, ea, etc) and 34 prefixes and suffixes. Children are taught to read 100 high frequency words at a sight level although ultimately 46 of these words are phonically regular and so will be decoded phonically when the appropriate skills have been taught. The benefit of teaching phonically regular, high frequency words, at a sight level is that it enables children to read a wide range of texts independently before they might otherwise have been able to do so, had they only been able to decode these words phonically. Children are taught to decode unknown high frequency words through a phonic route once they have been taught the necessary phonic skills.

The framework highlights the advantages of teaching children to read through 'real books' rather than reading schemes. This is based on the theory and instructional principles (contextual diversity, Shillcock and McDonald et al., 1998) underpinning the framework and the research undertaken in cognitive modelling. Thus, the framework represents an approach to teaching reading and spelling which brings together two previously irreconcilable philosophies: real books and phonics. For example, the Literacy Task Force (1997) commented, *'There have been few more vigorous educational controversies in the last decade than the one over how reading should be taught. Opposing sides in a vigorous national debate took to the barricades with banners proclaiming their loyalty to "phonics" or "real books (p16).'*' The ERR differs from other approaches to teaching phonics, both past and present, in the way children are taught and shown how to apply skills to a wide and diverse range of texts. Children will be less likely to apply and generalise their phonic skills if they are given a limited diet of books drawn from a reading scheme. This is counter-intuitive. Reading schemes create the illusion of progress but limit the likelihood of children applying their skills beyond the set books. The children who are most disadvantaged by reading schemes and comparable texts, are paradoxically the lowest achievers, who according to conventional wisdom, are thought to benefit most from structured materials.

The other components of the framework involve: reading high quality stories to, and with, children; listening to children read individually on a regular basis; teaching spelling daily for five minutes through a strategy based on children's segmentation skills (but not *say, look, cover, write, check* or multi-sensory approaches which from an instructional perspective are extremely flawed methodologies for teaching spelling); daily writing which emerges from the material children are reading; teaching new vocabulary; regular assessments and providing children with feedback on their progress.

Children are taught through a combination of whole class, group and individual teaching. Whole class sessions take place three times a day for a maximum of 15 minutes and involve high levels of differentiation, pupil involvement and feedback on progress. Approximately 50% of each 15 minute session involves teachers in reading high quality fiction and non-fiction to children. The nature of the framework means that children are not required to complete worksheets or undertake any independent written activities to practice their phonic and sight vocabulary skills. These skills are all taught within the context of the 15 minute session.

Table 1: The ERR Framework for Teaching Reading

The framework addresses the following areas:

- Teaching methods
- The frequency and duration of teaching
- Phonological awareness
 - Synthesis Skills
 - Segmentation Skills
- Phonic skills
- Sight vocabulary
- Reading to children
- Strategies for listening to children read
- Children's writing
- Teaching children to spell
- The regular assessment of children's learning.
- Providing children with feedback on their progress.

3.3 Assumptions Underpinning the ERR

The framework is underpinned by a number of key assumptions (see Table 2) and core psychological principles of teaching and learning (see Table 3). The assumptions underpinning the ERR reflect a very different philosophy towards

Table 2: ERR Assumptions

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- All children will reach age appropriate, and skill appropriate, targets when the teaching they receive is appropriate.
 - It is readily acknowledged that children learn at different rates and have differing strengths, interests and levels of motivation.
 - An instructional perspective takes the view that what children learn is consistent with the quality of teaching they receive.
 - An instructional perspective requires that the curriculum is examined and organised in such a way that it enables children to generalise their learning
 - Finally an instructional perspective rejects the view that children's failure to progress as expected can be attributed to a learning difficulty
-

teaching and learning to the one typically informing educational practice. Instead of attempting to answer the question 'how do children learn?' instructional psychology addresses the question 'what is the most effective way to teach?' As a result, rather than analyse the differences between children (for example their ability, personality, home background etc.) to explain differences in learning outcomes, instructional psychology focuses on the school and curriculum factors which teachers can influence directly. In particular, the ERR addresses what and how children are taught.

It is assumed within the ERR that when the teaching is right, all children will reach age and skill appropriate levels in literacy and numeracy. When children fail to meet our expectations it is assumed that it is the way they have been taught that is the source of the problem, not the children. This philosophy has led to the development of very different approaches to meeting the needs of lower achieving pupils to those typically adopted by those working in the field of special educational needs (SEN) who usually stress the need for extra resources or one to one teaching (see Solity 1991b; Solity, 2000 for further details of the framework for teaching lower achieving pupils).

3.4 ERR Instructional Principles

Distinctive instructional principles include teaching children: (i) through distributed rather than massed practice (Baddeley, 1997); (ii) skills to high fluency levels (Logan, 1988; Raybould and Solity, 1982; Solity and Bull, 1987); (iii) how to generalise their skills (Carnine and Becker, 1982); (iv) through a wide range of texts which ideally are not part of a reading scheme (Shillcock, McDonald, Hipwell and Lowe, 1998) and (v) through a process known as interleaved learning which minimises forgetting (Brown, 1998).

Children are taught one new skill at a time which has to be mastered before additional skills are introduced. Teaching strategies are designed to ensure that the presentation of new skills and knowledge is consistent with only one interpretation so that children's attention is drawn to the salient features of what is to be learned. Retention and generalisation are promoted through practising new skills alongside previously acquired skills and knowledge. Children are only taught skills which directly parallel tasks used in reading and spelling. For example, when reading children combine individual phonemes to pronounce a word (synthesis) and when spelling break words up into individual phonemes (segmentation). They are not

required to count or delete phonemes from words so these skills are not taught as they do not mirror tasks which have to be performed when reading and spelling.

Table 3: ERR Instructional Principles

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- **Distributed practice** (three sessions of 15 minutes) is preferable to massed practice (one session of 45 minutes)
 - **Interleaved learning** mixes new material with older, more familiar material which helps to prevent forgetting and aids retention.
 - Children are taught through **small units** (i.e. grapheme-phoneme correspondences) rather than larger units (i.e. onset-rimes) as children appear to be able to generalise their knowledge of smaller units to large units but cannot always generalise from larger to small units.
 - The **importance of representation** and **contextual distinctiveness** ensure that children are: (i) taught to read through texts which represent the written structures they will encounter as their reading improves and (ii) see new words in as many different contexts as possible. These principles can be seen to support the teaching of reading through 'real books' rather than reading schemes.
 - **Curriculum sequences** are adopted which facilitate **generalisation**
 - Skills are taught to high **fluency** levels.
 - Children are only taught skills which are **explicitly** used when reading, writing and spelling.
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3.5 Studies Undertaken within the ERR

The research undertaken within the ERR has embraced three areas; large-scale, classroom-based experiments; cognitive modelling and small-scale, laboratory-based experiments.

Large-scale, classroom-based experiments: Table 4 summarises the experimental, classroom-based studies which were undertaken between September 1996 and July 2002. The design of Study 1 controlled for the Hawthorn effect but it could nevertheless be argued that teaching anything in a systematic, consistent and structured manner would be more successful than conventional classroom practice (Solity and Deavers et al., 1999). Study 2 enabled this to be addressed by comparing, experimentally, two equivalent interventions, the ERR and the NLP. To my knowledge Study 2 represents the only experimental investigation into the impact of the NLP. Similarly Studies 4 and 5 represent the only experimental studies into the impact of the NLS (Solity and Deavers et al., 2000).

Table 4: ERR Classroom-Based Experiments

Study 1: Comparison between ERR and conventional classroom practice: two year intervention and one year follow-up
Study 2: Comparison between the ERR and National Literacy Project (NLP)
Study 3: Investigating the impact of the ERR in four different catchment areas
Study 4: Comparison between the ERR and NLS in the Basildon Action Zone: two year intervention and one year follow-up
Study 5: Replication studies within Essex and in other LEAs.

Cognitive Modelling: The research in cognitive modelling is discussed in Section 4 in this paper and has examined the content of different reading materials.

Future research will include teaching neural networks through different phonic programmes.

Small-scale, laboratory experiments: The ERR has involved a number of studies that have investigated the impact of individual, core instructional principles on children's acquisition of literacy skills. To date studies have been undertaken into: (i) the effects of onset-rime and grapheme-phoneme correspondences on children's reading (Deavers and Solity et al., 2000); (ii) massed and distributed practice (Seabrook, Brown and Solity, submitted) and (iii) the extent to which children's comprehension of phonically regular words impacts on whether such words can be decoded accurately (Solity, Ellefson and Randall, in preparation).

3.6 Early Reading Research Outcomes

Table 5 summarises the general outcomes from the classroom-based experimental studies. The results are very much the same across all the studies. Study 3 demonstrated that children from all four catchment areas achieved to the same level by the end of Year 1, suggesting that in the early stages of teaching reading, social disadvantage can be overcome. The results from Study 4 are particularly significant since the schools in the Basildon Action Zone have had the lowest attainments in the country at Key Stage 2 in recent years. The issue to be addressed is the extent to which attainments could be increased nationally given the outcomes in Basildon (Solity, 2000b; 2001).

The small-scale laboratory experiments show that: (i) it is preferable to teach beginning readers at the 'small unit level' (grapheme-phoneme correspondences) rather than 'large units' (onset-rimes) or a combination of the two. In fact beginning readers taught a combination of small and large units performed less well than those taught only small or only large units (Deavers and Solity et al. 2000) and (ii) children

benefit from have teaching sessions distributed throughout the day rather than being taught once a day in a single block (Seabrook and Brown et al., submitted).

ERR outcomes from the cognitive modelling research are discussed in Section 4

Table 5: ERR Outcomes from Large-scale, Classroom-based Experiments

-
- Dramatic, and statistically significant increases in the attainments of children in the experimental groups compared to comparison groups (i.e. those taught through conventional practice, or the NLP or the NLS)
 - Experimental groups approximately 6 months ahead of comparison groups after 2 years
 - Framework has impacted on attainments of all children, including higher and lower achievers
 - Typically lowest 25% in the experimental groups have RAs which are only 6-9 months behind their CAs but 12 months ahead of comparison lower achievers
 - Typically highest 25% in the experimental groups have RAs which are 24+ months ahead of their CAs and 12 months ahead of comparison higher achievers
 - Typically 80-90% of all pupils in the experimental groups have RAs above their CAs rather than the expected 50%
 - Incidence of children perceived to have SEN reduced from approximately 20-25% to 2-5%
 - Gender gap decreased
 - Dramatic increase in percentage of children getting to Levels 2, 2b and 3 in Key Stage 1 SATs
 - Children in Basildon achieving at a level ahead of Essex and National means
 - Gains maintained after intervention withdrawn
-

4 Instructional Psychology: Finding out what works and why

The aim of the ERR is to find out what works best in the classroom. However, it is recognised that within the educational community there is considerable resistance to any view that certain ways of teaching may be more effective than others. The conventional wisdom has always been that children learn in different ways and that there cannot possibly be one way of teaching that works for all children. Taken to its logical conclusion this view asserts that every child requires an individualised programme according to his or her specific needs which, practically, is untenable (Galton, 1989). Equally, it is invariably assumed that teachers have their own preferred teaching style and that what works for one teacher may not work for all teachers. The ERR accepts that teachers vary in their personalities, strengths and weaknesses but that there are nevertheless potentially ways of teaching, when underpinned by instructional theory and principles, which enable all teachers, irrespective of their differences, to become more effective. It is thought that it will be more readily acknowledged and appreciated that certain ways of teaching are more effective than others if teachers are able to explain not only *what* works but *why* something works as well. This is achieved within the ERR by underpinning the framework for teaching reading, writing and spelling with instructional principles and psychological theories of teaching and learning.

4.1 Rational Analysis and Pareto's 80/20 Principle

It is typically thought that one of the main problems in learning to read and write English is the irregular nature of grapheme-phoneme relationships. For example the NLS paper (DfES 2003b) states, '*the structure of the code is arbitrary and, for most, children, undiscoverable,*' and '*the features of the code do not occur with sufficient frequency or regularity in most early texts (p5).*' Unlike transparent languages such as Spanish, phonemes in English can be represented by more than one grapheme and

a number of graphemes represent more than one phoneme. Rational Analysis reflects Pareto's 80/20 Principle which states that a minority of causes, inputs or effort usually leads to a majority of the results, outputs, or rewards (Koch, 1998). Thus, in relation to written English, teaching a relatively small number of sight words or phonically regular grapheme-phoneme correspondences will account for a large number of the words that children are required to read. This being the case it may well be that a large part of written English may actually be quite regular, even if overall it appears to be highly inconsistent (i.e. a relatively small number of words contain the majority of the inconsistencies). The task facing instructional psychologists is to identify the potentially large component of written English that is regular and to find ways of teaching this effectively so that children are able to represent the structure of written English statistically.

4.2 Implications of Rational Analysis and Pareto's 80/20 Principle for Teaching Sight Vocabulary and Phonic Skills

The research undertaken within the ERR in cognitive modelling has focussed on identifying the structures in written English (Solity and Vousden, in preparation). To date this has addressed two areas, sight vocabulary and phonic skills. The research has investigated whether there is an optimal level of sight vocabulary and phonic knowledge which will be highly generalisable but where acquiring additional sight vocabulary or phonic knowledge would enable children to read relatively few extra words. This hypothesis has been explored within the ERR where four sets of written materials have been examined to ascertain the extent to which the ERR 100 high frequency words (which are slightly different from the NLS words) appear. The materials examined were adult fiction and non-fiction (Francis and Kucera, 1979); the content of approximately 70 'real books,' written for children at Key Stage 1 (for example, *Not Now Bernard*; *The Tiger That Came to Tea*; *Peace at Last* etc.); The

Oxford Reading Tree (ORT) and *Rhyme World (RW)*. Initially the frequency of the sixteen most frequently occurring words in written English was established and perhaps surprisingly, it was found that they occurred with greater frequency in adult texts (32%) than in real books and the *ORT* (25%) or *RW* (23%). Similarly the 100 most frequently occurring words accounted for more words within the adult texts (approximately 53%) than in the real books, the *ORT* (approximately 50% in both) or *RW* (approximately 42%). Thus, during Key Stage 1 children only need to learn a word a week to be able to read 50% of any material they are given.

If Pareto's Principle holds true for children's vocabulary, the next 50 (101-150) most frequently occurring words should account for a relatively small number of the remaining words in the texts examined. This is in fact what the analysis showed. After excluding those high frequency words which are phonically regular, there is little value in teaching any further high frequency words at a sight level as doing so accounts for relatively few words, certainly not enough to justify the time that might be involved in teaching them. Pareto's principle is acknowledged indirectly within the NLS through the decision to teach high frequency words. However, the NLS recommends that 150 words are taught at a sight level at Key Stage 1. Unfortunately children will derive minimal direct benefit from learning the final 50 words because they occur with such relatively low frequency in written English. Far better to spend time teaching more generalisable, and therefore valuable skills, which will be used more frequently.

The next question to be addressed within the ERR was whether Pareto's Principle applies to teaching phonic skills. The NLS teaches approximately 80 grapheme-phoneme correspondences and *THRASS 120* (Davies and Ritchie, 1998). The argument for teaching so many correspondences is that children need to know all the various graphemes which represent individual phonemes and the numerous

phonemes which are represented by individual graphemes otherwise they will not have sufficient knowledge to decode and spell efficiently.

The ERR framework for teaching covers 61 grapheme-phoneme correspondences where children are only taught the most frequently occurring grapheme for each phoneme. From an ERR perspective it is argued that teaching all the possible mappings between phonemes and graphemes will potentially leave children confused. However, the main argument against teaching an increased number of representations is that it is just not very useful, as many of the representations occur with such relatively low frequency. Far better to keep the teaching 'simple' and relatively straight forward by explaining to children that the representations taught within the ERR will lead to the correct pronunciation in the majority, if not all instances. However, this rationale is only valid if Pareto's principle applies to the phonic structure of written English.

The phonic analysis was conducted on the same texts as the sight vocabulary analysis after excluding the 100 most frequently occurring and polysyllabic words. The 61 grapheme-phoneme correspondences taught within the ERR accounted for approximately 90% of all monosyllabic words analysed. Again these correspondences were most frequent in the adult texts with the least being in Rhyme World. It therefore, appears that teaching a relatively small number of consistent grapheme-phoneme correspondences is highly efficient and gives an excellent return through enabling children to read and spell a large number of words. However, a considerable amount of time could be spent in teaching additional relationships which would contribute very little to children's capacity to read and spell. This is what happens within the NLS and programmes such as THRASS. The benefits of teaching an optimal level of phonic knowledge and then devoting teaching times to other areas of the curriculum, rather than teaching more phonic skills, is further illustrated through the research into the phonic self-correcting effect.

4.2.1 The Phonic Self-Correcting Effect: The next area to be investigated within the ERR was how children read words which contain grapheme-phoneme relationships that are not taught directly in the ERR. For example, in the ERR children are only taught the most frequently occurring pronunciation for the letter combination 'ea' (pronunciation as in 'beat'). Thus, when children encounter the word 'break,' the phonic skills taught though the ERR lead to the pronunciation, 'breek.' However, the research indicates that children are able to self-correct and articulate the correct pronunciation ('break') even though blending the phonemes represented by individual graphemes, according to what they have been taught, gives an incorrect pronunciation (Solity, Ellefson and Randall, in preparation). The extent to which children can self-correct appears to depend on three factors, (i) whether the word is in their vocabulary; (ii) how similar the correct pronunciation is to the incorrect pronunciation and (iii) the number of words (known as neighbours) with a similar pronunciation to the mispronounced word.

The implication of the ERR is that there is an optimal number of grapheme-phoneme correspondences which children can usefully be taught, after which, it is preferable to develop children's vocabularies (as this helps children to self-correct) and broader literacy skills since teaching additional grapheme-phoneme relationships has limited generalisability to written texts. There are three further points to consider. The first point is that the structure of real books appears to be as consistent and regular, if not more so, than reading schemes. As a result, given the theoretical perspective within the ERR, it is highly debatable whether there are any benefits in using a reading scheme. The second point is that there is little published research in the UK into the impact of published programmes teaching grapheme-phoneme relationships (such as THRASS and Jolly Phonics) and the unpublished research rarely includes control or comparison groups which are essential in demonstrating the impact of a programme (Brooks 2002). The third point is that if the 90% of

monosyllabic words, which can be read through 61 grapheme-phoneme relationships, had been taught through onsets and rimes, children would need to learn 334 onsets and rimes to read the children's literature and 534 to read the adult literature. Clearly it would take considerably longer to teach this amount of information than learning the 61 ERR grapheme-phoneme correspondences. Thus, teaching grapheme-phoneme relationships through onset-rime places greater demands on children's memories and potentially confuses them if taught alongside GPCs (Deavers and Solity, 2000).

4.3 Implications of Direct Instruction and Behavioural Psychology for Teaching Phonics and Sight Vocabulary

Direct instruction (Engelmann and Carnine, 1982) and behavioural psychology (Solity, 1991; Solity and Bull, 1987; Wheldall and Carter, 1996) have informed the framework for teaching reading through contributing to the development of instructional principles which underpin curriculum content, teaching strategies and methods of assessment. For example, such principles highlight how best to: (i) introduce new material; (ii) integrate this with previously learned skills and knowledge; (iii) determine when children have mastered new skills and are ready to move on to the next task; (iv) present materials which are potentially confusing because of their visual and auditory similarities; (v) assess children's learning and the effectiveness of teaching; (vi) give children feedback on their progress and (vii) enable children to apply their skills and knowledge to reading, writing and spelling. Again having such theoretical underpinnings to the teaching and learning process helps teachers to understand how best to teach.

5 Distinctive Features of the ERR

The ERR provides a rigorous theoretical, research and practical basis from which to evaluate all elements of the NLS, including the phonics component. The distinctive features of the ERR are summarised in this section.

5.1 A Coherent Rationale

The ERR assumptions, instructional principles and underpinning theory provide a coherent rationale for the teaching and learning process.

5.2 Generalisable Principles

The ERR has identified generalisable principles of teaching and learning. The research to date has focused on applying these principles to teaching literacy. However, they could just as easily be applied to teaching other areas of the curriculum, for example, maths, foreign languages or history. In fact they can underpin any area of teaching and learning. Thus, the ERR is broader than teaching either phonics or literacy and embraces an approach to teaching where identified instructional principles can be applied to any area of the curriculum. For example, experimental research is currently in progress which is comparing the National Numeracy Strategy with an alternative maths curriculum which is based on instructional psychology (Solity, Peters and Ellefson, in preparation).

5.3 An Integrated Approach to Literacy

The ERR represents an approach to teaching which sets the teaching of phonics in an appropriate context alongside broader aspects of teaching literacy such as listening to children read, reading to children, providing a framework for teaching a sight vocabulary and teaching vocabulary, writing and spelling skills etc.

5.4 A Unique Approach to Teaching Phonics

The ERR approach to teaching phonics is unique and qualitatively different from other approaches. Children are taught through small units and are only taught skills which are directly used in reading and spelling. They are taught one skill at a time and are shown how to apply their phonic knowledge to a wide range of texts where it is recommended that teachers use real books rather than reading schemes. The research in cognitive modelling has identified the optimal number of phonic skills to teach.

5.5 Evidence Based

The framework for teaching reading, writing and spelling within the ERR is evidence-based and its impact has been established through extensive classroom-based research in mainstream schools with large numbers of pupils.

5.6 Success for All (Teachers and Children)

The framework for teaching literacy is underpinned by generalisable principles of instruction which raise the attainments of all children, irrespective of their social background, ethnicity, or level of achievement. The framework also enables all teachers to become more effective and helps children across the attainment distribution to improve their reading, writing and spelling. As a result, reading failure is dramatically reduced and the progress of 'good readers' is accelerated.

5.7 An Inclusive Approach

The curriculum content, classroom organisation and teaching methods enable teachers to implement the framework within a whole class context with children with a diverse range of needs. Teachers are shown how to differentiate the curriculum and underpin their teaching of all children with a common set of instructional principles.

Teachers therefore, do not need to implement any additional programmes for teaching either phonics (e.g. PiPs) or lower achieving pupils (e.g. ELS, ALS, Reading Recovery), which may be extremely expensive, time consuming and which have not been shown to have a comparable impact to the ERR.

5.8 Built in Model of Formative Assessment

The ERR framework for teaching literacy involves the regular formative assessment of children's progress. During reception this is often daily and so enables teachers to monitor children's learning systematically from the moment they start school. Assessment data is then used to inform how best to meet children's needs in the future. Thus, within the ERR, there is no need for separate early identification and assessment procedures for children thought to be experiencing difficulties in learning. Such information is available through the normal course of teaching. The assessment model is known as 'assessment-through-teaching' which is well established within the field of educational psychology (see Solity, 1993; 1995; 1996).

5.9 Does not Rely on Home Support

The research undertaken to date indicates that children, irrespective of their social backgrounds, appear to make comparable progress. Thus, the impact of the ERR is not dependent on parental support. In part this may be due to the emphasis on 'real books' in school which introduces children with a limited exposure to books at home, to the kind of literature that other children invariably encounter when reading with parents/carers, attending nurseries or play groups or watching programmes such as Sesame Street on television.

6 Critique of the NLS

In 1999 Ofsted held an invited seminar to review the role of phonics in the NLS. Solity, Deavers and Kerfoot, (1999a) submitted a paper which offered a number of major criticisms of word level teaching within the NLS. Although the NLS paper (DfES 2003b) paper contends that Progression in Phonics (PiPs) was a response to the 1999 seminar, none of the problems identified by Solity and Deavers et al. were addressed through PiPs. In fact many of the criticisms of the NLS, and changes to the NLS subsequently made by effective schools, were predicted by Solity and Deavers et al. For example, Solity and Deavers et al. argued that (i) word level work should be taught before text level work; (ii) that the literacy hour should be split into shorter periods ('teach a little but often' which is now recommended in Grammar for Writing) and (iii) the structure of the NLS would make it very difficult for children to apply their phonic knowledge to texts.

6.1 Have Standards Increased Since the Introduction of the NLS?

The Government and NLS managers claim that standards have risen since the introduction of the NLS. This claim rests on the improved SATs results since 1998. It is important to examine this claim closely as its validity underpins the argument that the problems with the NLS are at the level of implementation rather than its content or teaching methods. To assert that standards have improved it has to be assumed that the SATs have remained the same from one year to the next. However, this is not the case and they were changed quite substantially in 2003, making comparisons from one year to the next largely invalid. Nevertheless, even if the assumption could be accepted, the children taking Key Stage 2 (KS2) SATs in 1999 had been taught through the NLS for only one year whereas those taking their KS2 SATs in 2002 had been taught through the NLS for four years. Furthermore, Ofsted evaluations of the NLS (1998-2002) and those from the DfES (2001, 2002, 2003) imply that the quality

of delivery of the NLS has improved from year to year and that the content has also been revised in response to feedback. As a result, if standards have risen SATs results should have increased substantially over time.

However, this is not the case and for the last three years the percentage of pupils achieving Level 4 in English at KS2 has remained the same. Given that teachers in Year 6 seem to be spending a considerable amount of time preparing children for the SATs, a generous interpretation of the results since 2000 is that standards have remained the same with a potentially more accurate interpretation, given the above scenario, being that they have actually fallen in the sense that children have received the NLS for longer, been better taught, better prepared for the SATs and yet the percentage reaching Level 4 has remained the same for the last three years. Given these factors a rise in attainments should have occurred. If standards have remained the same or declined it cannot be asserted with confidence that the content of the NLS 'is broadly correct.'

On the contrary, it probably needs to be revised substantially if the percentage of children failing to reach the expected levels for 11 year olds is to fall from its currently unacceptably high level. It is quite remarkable that in the 25 years since the Warnock report was published (DES 1978), which stated that approximately 20% of pupils would have difficulties in learning at some time in their school careers, we are currently expecting the same, if not more children (25% of eleven year olds failed to reach Level 4 in English in their KS2 SATs between 2000 and 2002), to fail, despite all the changes made to the education system by successive governments over a quarter of a century!

6.2 Has it been Demonstrated that the NLS is Effective?

The pilot version of the NLS, the National Literacy Project (NLP) was introduced to schools in January 1997 and ran until March 1998. It is common practice when

evaluating teaching programmes to wait until the formal evaluation has been completed before revising the programme and implementing an amended version more widely. However, the newly elected Labour Government, instead of waiting for the outcomes of the NLP evaluation decided in February 1998, one month before the NLP was due to finish, and seven months before the evaluation of the NLP was published (Sainsbury, 1998), that all schools would implement the NLS from September 1998. Two months after the introduction of the NLS the Government commissioned a report into the research supporting the NLS which was published in February 1999 (DfEE, 1999), five months after the commencement of the NLS. Again it is more typical to review the research underpinning a teaching programme before that programme is introduced rather than after it has already been implemented. The review contained a two page summary of the research into teaching phonics and phonological awareness and failed to make any reference to the ongoing debates and arguments about the teaching of phonics (for example see Goswami, 2002; Bryant, 2002; Hulme, 2002). It is therefore perhaps not surprising that the phonic and phonological element of the NLS has been found wanting in Ofsted and DfES reviews given how little attention the authors of the NLS appeared to pay to the existing research. In fact the Ontario Institute for Studies in Education (OISE) evaluation (DfES 2003a), on which claims that NLS has been successful are based, stated quite explicitly that it did not even address the impact of the NLS on children's learning in a systematic or focussed way.

The NLS paper (DfES 2003b) asserts that standards have increased as a result of the NLS but the data collected on its impact do not permit this conclusion to be drawn. There are three reasons for this. The first is that it cannot be claimed that the NLS has had an impact if the only data on which this assertion is based are SATs results. Secondly, as the only evaluations of the NLP and NLS are based on non-experimental research, and have not involved comparison or control groups, claims

about its impact are subject to the criticisms levelled at the non-experimental research (see Section 2). However, the importance of control groups when evaluating the NLP was noted by the Literacy Task Force (1997), where it was argued that the evaluation of the NLP should involve a comparison of the participating schools with a control group. However, this has not happened with either the NLP or NLS. The third reason is that 25% of the school population at KS2 is still failing to meet the performance levels expected for their age. Even if it is accepted that the NLS has had a significant impact on the other 75%, the fact that it is still failing to meet the needs of such a large group, given all the time, effort and resources that have been made available to improve children's literacy, suggests that it should at least be considered that the NLS embodies flawed curricula and teaching methodologies.

Well designed instruction should work for all children, not selectively for 75% of the population. In the absence of suitably conducted research into the impact of both the NLP and NLS, the evidence does not support the continued assertion that the content of the NLS is unproblematic.

6.3 Teaching Phonics in the NLS

The NLS has always recognised the importance of phonics in teaching children to read, write and spell. The major difference between the NLP and the NLS is the order in which word, sentence and text level work are presented. In the NLP the word level work was presented on the right hand side of the page but in the NLS it appears on the left. However, the content of the word level work in the NLP and NLS is identical. Potentially this is surprising given the Ofsted (1998) evaluation of the NLP which commented, *'The word level work caused teachers the greatest difficulty, largely because many of them did not have a sufficient knowledge and understanding of what the phonic component should be. They often gave insufficient time to word level work and, consequently, it was frequently superficial and lacked systematic*

coverage. The teaching of word level work in the Project schools has remained unsatisfactory in an unacceptably high proportion of lessons. Given its crucial importance, this is a very serious and significant finding (p9).' Subsequent Ofsted evaluations (Ofsted 1999, 2000, 2001 and 2002) have repeatedly commented on the poor quality of phonics teaching within the NLS and indicated that it is not being well taught in approximately 25% of classrooms. Although the NLS continues to assert that the problem in teaching phonics is one of delivery, an alternative, equally plausible interpretation is that the delivery of phonics teaching is poor because of what and how teachers are being asked to teach. If, as Ofsted comment in their last two annual reports, the quality of phonics teaching has improved, why has their not been a commensurate improvement in SATs results?

The NLS now includes a number of additional programmes (Progression in Phonics, Early Literacy Support, Additional Literacy Support, Further Literacy Support), which target low achieving pupils, although not explicitly the lowest attaining children who might be seen to have special educational needs. Again there is no evidence to demonstrate the impact of these programmes in raising the attainments of the target population. The scripted programmes within the materials tend to replicate the original instructional flaws in the NLS and do not incorporate the features of well designed programmes. It is also worrying that these programmes are being delivered by classroom assistants. It might be thought that the most vulnerable children would benefit from being taught by the most skilled practitioners. Irrespective of the quality of the classroom assistants, it seems inconceivable that they can acquire all the skills required to teach phonic and literacy skills to the lowest performing pupils within a two to three day in-service training course.

On the basis of the ERR a number of major problems can be identified with the phonics component of the NLS. These are summarised below.

6.4 Theory and Research

- Teaching phonics within the NLS is not underpinned by psychological theories of teaching and learning, experimental research or instructional principles. The lack of theory and research means that many teachers and students on initial teacher education courses are being trained to deliver the NLS, rather than being taught how to teach literacy (including phonics) effectively. Thus, they do not have an adequate knowledge base to adapt their teaching when children are seen to fail. The lack of knowledge and understanding of teachers was recognised by the OISE research team (DfES, 2003a) when they commented, '*many teachers will need to be highly skilled and more knowledgeable about teaching literacy and numeracy than is currently the case,*' and '*many teachers have not yet had the sustained learning experiences necessary to develop a thorough understanding of the strategies or of the best ways to teach literacy and mathematics to their pupils (p6).*' The lack of theory and research also impacts on the capacity of the literacy consultants to provide teachers with a coherent model for teaching phonics.

- The lack of instructional principles means that there are no frameworks in place to inform the development of teaching strategies, particularly in crucial areas such as promoting retention and generalisation of knowledge and skills (which are addressed through interleaved learning within the ERR).

- The concept of direct instruction represented in the NLS is highly flawed and far removed from alternative models of direct instruction based on instructional theory (Engelmann and Carnine, 1982). The main consequence of the naïve model of direct instruction embraced by the NLS is that there is no evidence that major instructional issues, such as applying and generalising knowledge, are addressed through either curriculum design or teaching methodology.

6.5 The Searchlights Model

- The studies undertaken within the ERR indicate that there are serious weaknesses in the searchlights model. These relate to: (i) the reciprocal nature of phonic and sight word reading skills; (ii) the extent to which phonological knowledge facilitates sight word reading and (iii) how vocabulary knowledge, rather than context, facilitates decoding. The NLS implies that the role of the teacher is to ‘switch on’ those searchlights which are not being utilised by children. The research undertaken within the ERR indicates that this misrepresents the nature of the relationships between decoding and comprehension skills and the role of vocabulary knowledge in developing children’s mastery of these areas.

6.6 The NLS In-service Training Model

- There are numerous difficulties associated with the training model used to disseminate details of the NLS, particularly the way teachers train their colleagues following in-service training. Miller (1996) and Georgiades and Phillimore (1975) discuss the limitations of training models which are dependent on teachers sharing their expertise with school colleagues.

6.7 Curriculum Content

- The way children are taught to synthesise and segment, particularly within PiPs is highly problematic. There is no evidence that teaching children to hear phonemes in different positions within three phoneme words enables them to synthesise, blend, segment or spell words containing up to five or six phonemes. The ERR has demonstrated that when teaching focuses directly and explicitly on the task to be learned children can synthesise up to six phonemes to pronounce a single word, and segment words containing up to six phonemes, without being required to state the first, last or medial vowel in CVC words. Identifying phoneme position requires

children to understand vocabulary which it cannot be assumed has been mastered before they start learning to read, particularly when this vocabulary is related to the position of phonemes in words.

- Similarly there is no benefit in requiring children to count the number of phonemes in a word. Potentially this limits the progress of children who have not acquired the necessary counting skills. However, and more fundamentally, this is not a skill which facilitates later progress in reading. Again it is far better to teach the task and teach children to segment words into phonemes, a skill that can be acquired within days of starting school.

- Teaching children rhyming and alliteration skills and general sound discrimination within Step 1 of PiPs, is highly questionable. This is similar to the activities advocated by the reading disabilities movement of the 1960s (Frostig and Marlow, 1973; Solity, 1996) and there is no evidence that these are pre-requisite skills of learning to read.

- The NLS requires beginning readers to acquire letter names as well as letter sounds. Teaching both potentially confuses children and doubles the amount of information they are required to learn. Letter names are best introduced after children have gained fluency in their application of letter sounds and can distinguish between letter names and sounds with fluency. Teaching names is a redundant skill in both early reading and spelling and takes instructional time which could more usefully be devoted to other activities (also see Section 9.9).

- The sequence through which phonic skills are taught is flawed. For example, it is much easier to teach children to read CVCC words than CCVC words (Carnine and Silbert et al., 1997) and so they should be taught first. However, the NLS teaches CCVC before CVCC words. Similarly the order for teaching letter sounds is also flawed. The evidence from the ERR is that the sequence should be determined by

letter frequency in written English. There is no evidence that this sequence should be influenced by which letters are perceived to be easiest to write (also see Section 9.4).

- Teaching children to read and spell through word families limits children's capacity to generalise their skills to new materials and new contexts.

6.8 Teaching Methods

- It is preferable to teach visually and auditorily similar grapheme-phoneme relationships separately rather than together. The NLS teaches these together.
 - Activities in PiPs (for example Circle Swap Shop, Jump in the Hoop) are frequently recognition rather than recall tasks which are much easier for children to master. Success on such tasks does not necessarily ensure that children will be able to recall appropriate grapheme-phoneme-relationships.
 - The activities in PiPs are divorced from the reading process and so: (i) they may not draw children's attention to the phonic skills being taught; (ii) they require a lot of additional materials and resources and (iii) it is not at all surprising that children have difficulty in applying their phonic knowledge to texts. Such activities may be fun but potentially limit the likelihood of children appreciating how the specific skills being taught relate to reading and spelling.
 - Despite the suggestion in the NLS paper (DfEE 2003b) that the pace of teaching is rapid, children have relatively few opportunities to practice grapheme-phoneme relationships within the NLS programmes, particularly when compared to the ERR. The pace of teaching within the ERR is far greater in terms of both the rate at which children learn skills and the number of opportunities they have to practice within a single teaching session. For example, in the time taken to play any game in PiPs, children following the ERR literacy programme would have had one of the three daily skills teaching sessions which would have required children to make well over a 100 responses.

- The time taken to organise the activities in PiPs is considerable and reduces the amount of time for direct teaching.

6.9 Assessment

- There are no clear criteria, particularly fluency-based criteria, for enabling teachers to determine whether phonic skills have been mastered.
 - Progress through the NLS appears to be determined by the time of year rather than whether children have mastered skills. For example, the ELS and ALS specify what should be taught on a daily basis but do not appear to address how programmes can be differentiated, take account of whether skills have been mastered or address children's different rates of learning.

6.10 Planning and Record Keeping

- The amount of planning and record keeping is considerable. Much of this is redundant and takes up valuable instructional time.

7. Tensions and Concerns in Teaching Phonics in the NLS

The NLS paper is clear about the problems associated with the NLS: *'there are still serious issues about the level and quality of teacher, and headteacher, knowledge, '.....'despite an extensive round of phonics training for some 20000 teachers in 1999, many teachers' understanding remains limited,'.....'too many still fall back on inadequate methods, teaching phonics inconsistently or omitting it altogether,''particular groups of teachers need to be targeted with continuing support and training over the next phase of the NLS. These include: headteachers, whose leadership in this area is insufficiently strong; early years teachers, who are often confused by mixed messages about how and what they should be teaching in literacy; Key Stage 1 teachers whose understanding of the code and pedagogy is too*

limited; Year 3 and 4 teachers, whose knowledge of phonics is often more limited (p20).'

It is thus felt that the NLS is failing to meet its targets because of poor teaching, lack of teacher knowledge and poor leadership from headteachers. While these areas may well need attention, the ERR indicates that there are major problems with the content as well. However, this view is strongly resisted in the NLS paper (DfES 2003b). Those responsible for developing the NLS were equally convinced and adamant in 1998 that they had got the literacy hour right and appeared unwilling to accept that it contained major flaws. So the NLS originally stressed the importance of teaching text level work before word level work and placed great emphasis on teaching onsets and rimes. Four years later, many successful schools have adapted the strategy and now split up the hour and teach word level work before text level work. It is interesting to note that the NLS paper (DfES 2003b) makes no explicit mention of teaching phonics through onset-rime which was widely promoted in the past by the NLS and was a major issue in earlier debates.

It has already been stated that the evidence on the impact of the NLS is questionable. However, if gains have been made there is no evidence to refute the suggestion that these are due to the level of parental support that children receive, or the home tutoring which is known to take place in Year 6 as anxious parents try to ensure their children gain entry to the secondary school of their choice. Similarly the evidence on the success of the NLS fails to acknowledge the very strong possibility that the majority of schools which achieve the best results at the end of KS2 may well have the highest attaining pupils on school entry. The best predictors of pupil attainments are still parental income and children's knowledge of letters on beginning school.

Compare the potential starting points on school entry of children who regularly encounter and share books with adults prior to starting school with those who do not.

The outcomes of the ERR suggest that children's exposure to high quality books will be as important in facilitating children's literacy skills as the nature of their phonic programme, if not more so. At the moment, given the NLS, it is unlikely that children with limited experience of books at home will get sufficient opportunities in school to have the kind of engagement with children's literature that will enable them to make the desired progress.

On the basis of the ERR, the majority of children (90-95%) can master the necessary phonic skills within a single academic year and all children within two academic years. This is the easy part. What is more difficult to ensure is that children with limited exposure to books get the necessary experiences with literature in school. For many reasons guided and shared reading do not provide these opportunities. The potential solution to low attainment is not to teach more phonics or to teach phonics earlier, but to give a clear message that children need to spend time listening to stories and having fun sharing books with adults. The very real danger is that giving clearer messages about phonics will further limit children's opportunities to listen to stories and to read books which they enjoy and find exciting and rewarding and motivate them to want to learn to read.

The NLS paper (DfES 2003b) asserts that what needs sharpening is the clarity of the message about teaching phonics to beginning readers. However, the ERR indicates that teachers need to be given very different messages, not clearer messages, about the role and nature of phonics in teaching in the NLS.

8 Improving Phonics Teaching within the NLS: Changing the Context

The identified problems with phonics teaching within the NLS can be placed in the broader context of the NLS as a whole. Space precludes a full critique of the NLS but some of its major limitations, which have already been highlighted in discussing phonics, are that it: (i) is not underpinned by psychological theories of teaching and

learning; (ii) is not underpinned by instructional principles which will limit the extent to which children can generalise, apply and retain their knowledge; (iii) does not provide a clear rationale for what or how children are taught, which in turn means that children also have a limited appreciation of the activities in which they engage; (iv) does not make the links between skills taught and reading, writing and spelling sufficiently explicit; (v) does not teach directly to the task; (vi) does not require teachers to assess children's progress with sufficient frequency; (vii) is structured and organised in such a way that progress through the curriculum is determined by the time of year rather than the rate of children's learning; (viii) does not give teachers sufficiently clear guidelines on how to manage children's group behaviour or how to differentiate the curriculum; (ix) encourages teachers to focus on whether they have delivered the components of the NLS (i.e. guided reading and writing, shared reading and writing) rather than consider whether they are teaching literacy effectively; (x) has a flawed model of in-service-training and (xi) is failing to meet the needs of the lower achieving pupils through the additional programmes which have been introduced.

Some of these problems are the direct result of the different goals of Government and teachers. The role of Government is to implement policies aimed at raising standards, (which often involve changes in practice), and convince the electorate that these changes have made a fundamental difference to the quality of education offered to children. Teachers on the other hand are responsible for developing their practice, over time, in response to experience and research. The time scales and aims of Government and teachers are different and potentially incompatible. The Labour government elected in 1997 had to introduce a new curriculum and teaching strategy to every primary teacher in the country, and demonstrate their impact, within four years before their term of office was over. Making enduring changes to classroom practice based on systematic, classroom-

based research invariably takes considerably longer. The current proposals for changing phonics teaching are again being driven by the needs of Government, rather than those of teachers, children or parents and so potentially will merely lead to another set of recommendations, training programmes and materials that are no better informed or researched than the ones they are replacing.

Other problems are a consequence of the NLS authors adopting flawed models of direct instruction which fail to appreciate how to design curricula or teaching approaches through which they can be delivered. Ultimately reading should be fun, exciting, stimulating, informative etc. and potentially children spend too little time on activities which facilitate these goals.

If the NLS is to become more effective it is likely that substantial changes will need to be made to all aspects of the phonics element, not just in how it is delivered. The impact of phonics teaching will be closely related to a number of factors, for example the way children are taught to apply their skills and the books that they read. So although the focus of the seminar was on teaching phonics, it is not possible to consider how to improve phonics teaching in isolation without examining broader aspects of teaching literacy.

8.1 Recommendations

- First and foremost it would be a mistake to produce yet another set of materials for teachers to use without addressing some of the more fundamental problems contained within the existing materials. Potentially the most significant step that could be taken is to give teachers greater responsibility in selecting appropriate curricula and teaching methods. Teachers could evaluate the evidence on teaching phonics through suitable publications and national conferences. They could then make an informed decision about how best to teach in the future based on research rather than being directed, yet again, what to teach.

- The NLS should therefore, give teachers a greater awareness of the theory, research and instructional principles that inform teaching phonics. This would make it easier for them to adapt and differentiate their teaching of phonics where appropriate. At the moment when children fail to make the expected progress those responsible for teaching them: (i) invariably assume those children have a difficulty in learning; (ii) place them on a supplementary NLS programme, such the ELS, ALS or FLS, and (iii) place the children on the Code of Practice and seek guidance from the school SENCO.

- The Government should fund research which compares different methods of teaching phonics (which would include the ALS, ELS and FLS but also those programmes developed by researchers and publishers) so that over the time the nature of phonics within the NLS can be clarified, refined and reflect research outcomes in a UK context. The aim should be to identify approaches to teaching phonics which are cost effective, can be shown to raise standards of literacy, prevent difficulties and encourage children to read widely so that they find reading enjoyable and rewarding.

- Any data collected on children's progress would be used formatively to help schools evaluate their current performance and enable them to plan how best to move forward in the future. The role of assessment would be to inform and guide teaching rather than provide a basis for normative comparisons between schools. The goal of every school would be to improve on previous results and work towards the original target of the Literacy Task Force which was that, '*all children leaving primary school...will have reached a reading age of at least eleven (p7).*' The evidence from the ERR indicates that higher standards are achieved by requiring schools to review and change their educational practice until all children reach this goal.

- LEAs should appoint research officers who are responsible for working with schools to help them to evaluate their teaching and gather data on 'what works.' They

would be expected to identify effective practices and work with teachers in extending and refining those strategies which are shown to impact positively on children's attainments, particularly those of lower achieving pupils.

- The NLS adopts a conventional approach to teaching lower achieving pupils or those seen to have SEN which is to focus on: (i) offering extra resources and materials; (ii) increasing the level of small group and 1-1 teaching; (iii) specifying targets and (iv) extra record keeping. However, there is no evidence that any strategies developed within the field of SEN have any impact on increasing children's attainments (Lewis and Norwich 2000). For example, the emphasis on specifying targets is frequently naïve as this fails to address the critical question of whether the selected targets are appropriate in the first place. Thus, the instructional strategies for teaching phonics to the lowest achieving pupils need to be revised to represent what is known, and been shown, through experimental research, to raise the attainments of the lowest achieving pupils.

- Currently phonics teaching within the NLS is delivered through 'three waves.' The ERR indicates that this is a flawed model. A more appropriate instructional framework requires teachers to receive effective training in: (i) the principles of instructional design; (ii) teaching methods; (iii) assessing children's progress; (iv) differentiation and (v) strategies to teach the lowest achieving pupils.

- Phonics is delivered through a variety of programmes (PiPs; ELS, ALS, FLS). Over time these should be reduced and integrated into a single coherent programme of phonics teaching which enables teachers to assess and differentiate their teaching within a whole class context.

- The content of the NLS for Key Stage 1 should be restructured so that it reflects the increased focus on phonics teaching. The phonics element of the NLS should identify the sequences through which skills are to be taught but not relate them to age groups or the time of the year. The message should be that children only move on

from one skill to the next after skills have been mastered and successfully applied to a wide range of texts.

- A major problem with the phonics element of the NLS is that children are not seen to apply their skills to texts. This needs to be addressed in two ways. The first is by revising the teaching methods through which phonics is taught so that children are only taught skills which directly parallel skills used in reading. The second is to make substantial revisions to the nature of shared and guided reading so that children are given considerably more opportunities to read a wide range of books, out aloud, to teachers (and others) so that their progress in applying phonic skills can be monitored systematically.

- There is clearly confusion about the role of synthesis and segmentation in teaching reading and spelling. Teaching synthesis and segmentation through the methods advocated by the NLS, will potentially lead children to be confused about how the respective skills are used in reading and spelling. This is illustrated in the following statement from Ofsted (2001), *'further phonic work in the same 15-minute session focussed on spelling. Selected pupils stood at the front of the class, with letter cards, standing in the correct order to spell the required word. This was reinforced by more changes of phonemes, for example, bent, pent, pelt, melt, met, net, nest. Each change was accompanied by pupils quickly segmenting the sounds to spell the given word and blending to read it (p5).'* Are these children learning to spell through identifying the phonemes in a word, stating the phonemes, and writing the graphemes which represent the phonemes or merely stating the phonemes after 'reading' the graphemes on the cards? This task could be performed by children without 'spelling' the words at all!

- The NLS should reduce the number of words taught at a sight level and change the sequence through which grapheme-phoneme relationships are taught so that it is more

consistent with what is known about teaching items that are typically confused visually and auditorily.

- The NLS should consider introducing regular opportunities for the formative assessment of phonic skills so that teaching is appropriately matched to children's rates of learning.

- The nature of planning and record keeping associated with phonics teaching should be revised and substantially reduced so that it becomes more focussed, relevant and realistic for everyday classroom use.

9 Comments on Brooks (2003)

Brooks (2003) raises a number of issues, some of which have been discussed elsewhere in this paper. However, they are considered briefly again in outlining the ERR perspective on Brooks (2003).

Brooks concluded that a, *'major redirection of the phonics element of the NLS is neither necessary nor appropriate but a number of revisions, and some focused research, are needed.'* This is clearly not a conclusion that is consistent with the ERR. Perhaps the most worrying aspect of this conclusion, which is shared by David Hopkins, the head of the Standards and Effectiveness Unit, is that it would appear that teachers will be expected to deliver the phonics element of the NLS through a whole variety of programmes (i.e. PiPs, ELS, ALS etc.) rather than through a single, substantially revised framework, where teachers learn to differentiate effectively within a whole class context. It is extremely debatable whether these supplementary programmes are meeting the needs of the children for whom they were designed.

Brooks has identified a number of concerns with the NLS which he believes have now been resolved. These are considered in Sections 9.1 to 9.4.

9.1 Pace

Studies conducted within the ERR on lower achieving pupils suggest that they encounter two major problems when reading. The first is that they are not sufficiently fluent in their recall of grapheme-phoneme relationships. The second is that as a result, they are not able to apply their phonic knowledge to texts. Pace of teaching can refer to the pace at which the lesson is conducted or the rate at which children are required to respond. It is only when the pace of delivery and rate of children's responses are high that they will reach the levels required for rapid, fluent decoding. Unfortunately programmes such as PiPs do nothing to address these issues despite the assertions by Brooks and the NLS paper. The nature of the games and activities in the NLS materials are not designed to promote sufficiently high fluency levels in terms of either teacher delivery or children's responses. As a result, children will not achieve the necessary fluency levels or have sufficient opportunities to apply their skills to a wide range of texts. Within the ERR the lowest achieving pupils have their progress assessed through Precision Teaching (Solity and Bull, 1987). The assessment procedures it incorporates require children to make upwards of 50 responses per minute. This enables them to achieve fluency levels which are not possible with the NLS programmes.

9.2 Is Phonics Taught Systematically Within the NLS?

Brooks also implies that the phonics teaching within the NLS is systematic. Clearly the notion of what is systematic varies considerably from individual to individual. Numerous phonics programmes may, by some criteria, be construed as representing systematic phonics teaching, for example the ELS. It contains scripted lessons and progresses gradually through the phonics element of the NLS. It is systematic but the key issue, from an instructional perspective, is whether the content and teaching methods are appropriate and incorporate the features of effective curriculum design,

which are critical within instructional psychology. Thus, teaching may be systematic but may nevertheless still be flawed for all the reasons discussed within this paper.

9.3 How Useful is the Construct of Synthetic Phonics?

The concept of 'synthetic phonics' is also extremely broad and can be open to a number of interpretations. For example, various press reports on the ERR have referred to it as being an example of, or endorsing, synthetic phonics. However, at no time have those involved in conducting the ERR ever used the term 'synthetic phonics' to describe the methods through which phonological and phonic skills are taught. There are two main reasons for rejecting the use of the label in connection with the ERR. The first is that such labels are largely irrelevant, unhelpful and divisive. The area of reading is littered with practitioners and researchers becoming aligned with various competing camps. In the past it was real books versus phonics, now it is synthetic versus analytic phonics. Within the ERR the only concern has been to research the most effective strategies for teaching literacy. So the framework for teaching reading identifies and provides a rationale for how best to utilise phonic skills for reading and writing. We describe what children need to be taught rather than label these strategies as synthetic or analytic

The second reason is that phonic programmes which are identified as being examples of synthetic phonics vary considerably. It cannot be assumed that the term reflects a common set of strategies. For example, the phonics component of the ERR framework is quite different from Jolly Phonics, THRASS, rml (ruth miskin literacy), etc. From the perspective of instructional psychology many of the programmes identified as teaching synthetic phonics contain numerous design flaws. For example, some of the programmes: (i) do not teach phonological skills; (ii) teach letter sounds through physical and gestural prompts; (iii) use specially prepared texts with controlled vocabulary; (iv) require children to practice phonic skills through

completing work sheets; (v) fail to give children adequate opportunities to apply their skills to a wide range of texts; (vi) are not underpinned by instructional principles (viii) are taught in a vacuum and are not related to other aspects of teaching literacy and (vii) have not been researched adequately.

9.4 The Order in Which Phonic Knowledge is Taught

Brooks identifies the criteria which could usefully be adopted when considering an appropriate order for introducing phonic skills. Criteria which he sees as the most obvious and fundamental are, 'frequency, phonic regularity and usefulness to learners.' These are in fact some of the criteria adopted within the ERR to determine not only the order in which letter sounds are introduced but also for sequencing phonically regular words, letter combinations and prefixes and suffixes (see Section 3.2 for further details). However, other considerations in determining an appropriate order are visual and auditory similarity, so that items which might be confused are separated (e.g. e/i, b/d, m/n). In addition another major factor in determining a suitable order is generalisation and the extent to which learning earlier skills facilitates the acquisition of later skills.

Brooks has identified a number of concerns with the NLS which have yet to be resolved. These are considered in Sections 9.5 to 9.7

9.5 How Much Phonics?

Brooks asks how much phonic knowledge do children require? He seems to be suggesting that there is an optimal number of phonic skills to teach children. This is addressed within the ERR through rational analysis and Pareto's Principle and is discussed in Section 4. In summary, children are taught what have been identified as the optimal number of phonic and sight vocabulary skills which enables them to

generalise their knowledge to a wide range of books and tasks. Teaching further skills, beyond the optimal level, has a relative negligible effect on subsequent reading because the additional skills taught are of relatively low frequency and so are rarely used when reading.

9.6 Different Phonics for Reading and Spelling

In the early stages of teaching spelling in the ERR children are only taught to spell the words they can read. Spelling therefore lags slightly being reading. Children will have read the words on many occasions to very high levels of fluency and will also have engaged in extensive periods of discrimination training where they have had to discriminate the spellings of new words from previously spelled words. Within the ERR children are taught to spell phonically irregular words, phonically regular words, words with letter combinations and prefixes and suffixes. Space precludes a full description of the teaching methods used to teach spelling within the ERR.

However, many of the conventional strategies that are typically used to teach spelling, which focus on visual memory, word families, multi-sensory approaches or strategies such as 'say, look, cover, write, check,' are highly questionable from the perspective of instructional psychology. Similarly, it is also highly debatable whether beginning spellers need to be taught letter names or need to be given the full range of graphemes which can represent individual phonemes (see Sections 3.2 and 4).

The goal in the ERR spelling programme is to teach children to translate phonemes into graphemes. They are taught segmentation skills at the small unit level before being taught to segment words with larger units and prefixes and suffixes. After children can segment words into phonemes, they are taught the most frequently occurring graphemes that represent different phonemes. Within the ERR children utilise very different phonic skills when spelling and writing compared to reading. The differences between the two are made explicit for children and spelling is taught

through the same instructional principles as reading. After reading Brooks (2003), DfES evaluations of the NLS and PiPs, it seems unlikely that the necessary distinctions will be made in the NLS between synthesis and segmentation, or between segmentation, spelling and writing, which are critical when being taught to spell within the ERR.

9.7 A Model of Reading Instruction: The Relationship Between Decoding and Comprehension

The ERR framework for teaching reading is based on the model of reading instruction developed by Carnine and Silbert (1979) and Carnine and Silbert et al. (1997). The model identifies decoding and comprehension as the two skills involved in reading. Within each area there are units, processes and knowledge which are all involved in different ways in enabling children to decode and comprehend. The model therefore addresses the skills and knowledge that children need to learn so that they can read fluently and with understanding.

Finally, there are a number of issues which need to be addressed in any review of phonics teaching within the NLS but have not been raised by Brooks. These are considered in Sections 9.8-9.11.

9.8 Onset-rimes and Grapheme-Phoneme Correspondences

When the NLS was introduced in 1998 a prominent feature of the word level work was teaching children to rhyme and onset-rime. The role of onset-rime in teaching reading is now the subject of considerable debate and there appears to be an increasing acceptance that beginning readers should be taught at the level of GPCs rather than onsets and rimes. However, although recent NLS materials now talk about the importance of teaching GPCs, there has been a prolonged silence on whether this

carries any implications for teaching onset-rimes within the NLS. As the research into cognitive modelling has illustrated (see Section 4), the memory load in reading words through onset-rimes rather than GPCs is considerable.

9.9 Letter Names and Letter Sounds

Equally it is not clear what role the authors of the NLS see for teaching letter names alongside letter sounds and this was not addressed by Brooks. On the one hand, as already stated, the NLS is focussing increasingly on GPCs. Letter names rarely contain a single phoneme but in fact their correct pronunciation can in many instances be seen to require the blending of an onset with a rime (e.g. the letter name for the grapheme 'b'). Teaching letter names and sounds together increases the memory load quite significantly. The ERR demonstrates the high levels to which children from financially disadvantaged and low attaining schools can achieve in reading and spelling, even though they are not taught any letter names until Year 2. Focussing on letter sounds initially, when teaching reading and spelling, minimises what children have to remember and keeps teaching 'simple.' Children learn to spell and write fluently and do not appear to experience difficulties in using letter names when they are introduced (see Section 6.7).

9.10 Application to Text

The ERR has indicated that achievements in literacy can be raised quite dramatically when children are given constant opportunities to hear high quality books and also apply their skills to reading a diverse range of books. It is difficult to see how the NLS will provide sufficient opportunities to ensure that these goals are achieved.

9.11 A Model of Teaching and Learning

Brooks does not reference his comments about phonics to any broader theoretical frameworks about teaching and learning. However, the ERR embraces a model of teaching and learning which can be applied to any curriculum area.

Finally, it may appear that the ERR is being presented as an alternative to the NLS and that teachers should 'do the ERR' instead of the NLS. This is not the case. The ERR has demonstrated that attainments can be increased dramatically and difficulties largely prevented. Given that the ERR was conducted in some of the most financially disadvantaged, traditionally low attaining schools in the country, the question to be addressed is whether attainments can be raised nationally to a comparable or greater level. The ERR can therefore be seen to have provided a minimum expectation for what children can achieve. However, it is immaterial whether teachers secure similar results through the ERR, the NLS or any other teaching programme. The content of what is taught only becomes a matter of concern when children do not achieve to the same level as pupils within the ERR or when it is claimed that lower achieving pupils have difficulties in learning.

10 Conclusion

Approximately £460m has been spent on introducing the NLS to schools and the annual expenditure is around £70m (DfES, 2001). Some of this money has been spent on 'persuading' every teacher in Key Stages 1 and 2 to use the prescribed, but non-statutory programmes. Given the expenditure it is difficult to imagine a scenario where the Government, or those managing the NLS, could admit that a key element in that programme, the teaching of phonics, is flawed. The Government believes that targets are not being met because the NLS is not being well managed by some headteachers or implemented sufficiently well by some teachers. It will not even

concede the possibility that these failings could be the result of the training they have provided.

The Government, despite honourable intentions, has shown time and time again that its solutions to perceived problems in education are extremely expensive and invariably flawed. Educational Action Zones were introduced at an overall cost of approximately £200m but have now been withdrawn due to their lack of impact. The same is true of Summer Schools and Beacon Schools which were both introduced at considerable cost but are now seen to have failed. Government initiatives are rarely evaluated with sufficient rigour. This is particularly true of the NLS. I suspect matters will only change for the better when the teaching profession takes the lead in demanding that whatever they are advised to teach, from whatever source, is supported by research which they can evaluate and where they have a degree of autonomy in determining what and how they teach. However, in return they should anticipate that their classroom practice will be researched and reviewed more systematically and rigorously than in the past

Tony Blair (2002) in 'Reforming Our Public Services,' stated that, '*strong and high quality public services are essential if we are to achieve our central aim of spreading prosperity and opportunity*' '*But it also needs us to listen and learn from your experience, to give you the recognition, resources and support needed to bring about the changes we all want to see, and to work together to see how these changes can be achieved (p2).*' He also laid out several principles to guide those working in the public sector. These included, (i) '*devolution which means Whitehall is serious about letting go and giving successful front-line professionals the freedom to deliver these standards (p3);*' and (ii) '*flexibility which means removing artificial bureaucratic barriers which prevent staff improving local services (p3).*' Government rhetoric implies a willingness to learn from 'front line professional,' which hopefully also includes research into the impact of the NLS, and to remove

barriers to change. If the reality matches the rhetoric, this will enable the teaching profession to become more critical of Government generated curricula and take greater responsibility for determining what and how they teach. It is to be hoped that this will be informed, in part, by systematic, rigorous, classroom-based research into 'what works.'

If the ERR outcomes could be replicated nationally, approximately £200m would be saved annually on SEN funding for children with literacy difficulties in mainstream schools (DfEE 1998). At the moment £70m a year is being spent on promoting the NLS, which through its design limitations, including those in teaching phonics, leads to approximately 25% of the primary school population failing to meet age expectations in literacy which then costs a further £200m a year in SEN expenditure. Therefore, the financial implications of failing to address the limitations in phonics teaching within the NLS are potentially enormous. The cost to the children, particularly those that are currently failing, is even greater.

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